



STIC Search Report

EIC 1700

STIC Database Tracking Number: 157735

TO: Camie Thompson
Location: REM 10D28
Art Unit : 1774
July 12, 2005

Case Serial Number: 10/743778

From: Usha Shrestha
Location: EIC 1700
REMSSEN 4B28
Phone: 571/272-3519
usha.shrestha@uspto.gov

Search Notes



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

103(a) → 10/634,580
2004/0053069 → 2 Can use
high priority translation required

Drop off or send completed forms to EIC1700 REMSEN 4B28

Access DB# 157735

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Carmie S. Thompson Examiner #: 79244 Date: 6/21/05
Art Unit: 1774 Phone Number 301-591-2722 Serial Number: 10743778
Mail-Box and Bldg/Room Location: 10028 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: organic electroluminescent device
Inventors (please provide full names): Jeong Dae Seo; Kyung Hoon Lee; Hee Jung Kim; Hyung Yoon Oh
Earliest Priority Filing Date: 12/24/02

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please do a search on Claims 1-10.

Thanks

STAFF USE ONLY

Searcher: uka
Searcher Phone #: _____
Searcher Location: _____
Date Searcher Picked Up: 7/11/05
Date Completed: 7/12/05
Searcher Prep & Review Time: 150
Clerical Prep Time: 30
Online Time: 200

Type of Search

NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) 1
Bibliographic _____
Litigation _____
Fulltext X
Patent Family _____
Other _____

Vendors and cost where applicable

STN 604.10
Dialog _____
Questel/Orbit _____
Dr. Link _____
Lexis/Nexis _____
Sequence Systems _____
WWW/Internet _____
Other (specify) _____

Fuller, Kathleen

From: BroadCast

Sent: Tuesday, July 12, 2005 11:38 AM

To: BroadCast

Subject: Elimination of the Thrift Savings Plan (TSP) Open Season

TSP open seasons were eliminated effective July 1, 2005. As a result of the elimination of TSP open seasons, employees covered by the Federal Employees Retirement System (FERS) or Civil Service Retirement System (CSRS) may make a TSP contribution election to start, change, stop, or resume TSP contributions at any time. TSP contribution elections will be effective the first full pay period following receipt of the election.

Newly hired FERS employees and FERS employees reappointed following a break in service who were not previously eligible to receive agency contributions must serve a waiting period before they can receive agency contributions to the TSP accounts. The waiting period criteria are as follows:

- If the effective date of the appointment is any date during the period June 1 through November 30, the agency contributions must begin the first full pay period of the following June.

- If the effective date of the appointment is any day during the period December 1 through May 31, the agency contributions must begin the first full pay period of the following December.

The elimination of TSP open seasons does not affect contribution allocations or interfund transfers, which can be made at any time by using the TSP web site: <http://www.tsp.gov>, calling the ThriftLine at 1-877-968-3778, or by submitting the TSP Investment Allocation form (TSP 50) to the TSP Office.

For more information on TSP, please visit the TSP web site, or contact your servicing human resources office.

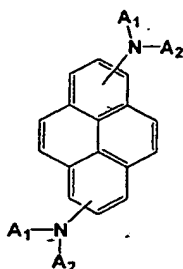
This message has been approved by OHRM.

7/12/05

What is claimed is:

1. An organic electroluminescent device, comprising:
a substrate;
a first and second electrodes formed on the substrate;
an emitting layer formed between the first electrode and the second electrode, the emitting layer having a plurality of materials and being a blue emitting material using a chemical formula 1 as a dopant. *exemplary*

[Chemical formula]



Wherein, at least one of A₁ and A₂ is selected from a substituted or non-substituted aromatic group, a heterocyclic group, an aliphatic group and hydrogen.

2. The organic electroluminescent device of claim 1, wherein wt. % of the material in the chemical formula 1 is 0.1 - 49.9wt.% of a total weight of the emitting layer.

3. The organic electroluminescent device of claim 1, wherein materials forming the emitting layer together with the material of the chemical formula 1 is structured as a chemical formula 2 *exemplary*

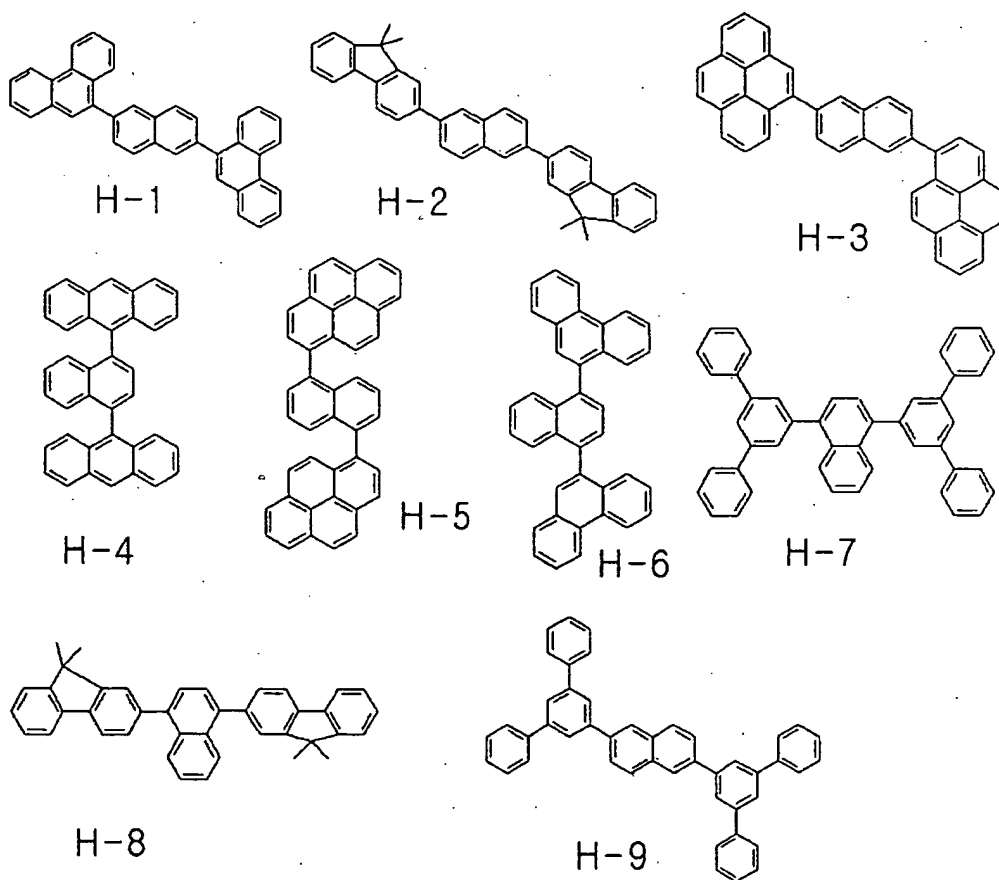
[Chemical formula 2]

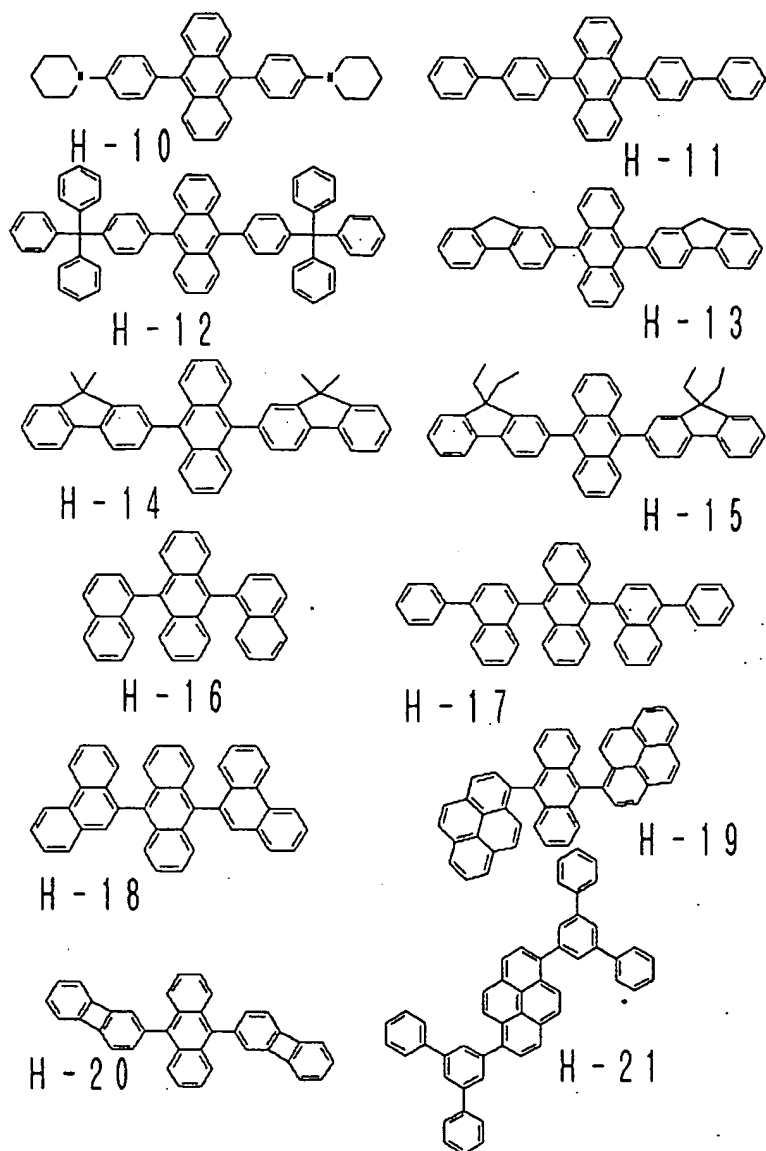
B1 - X - B2

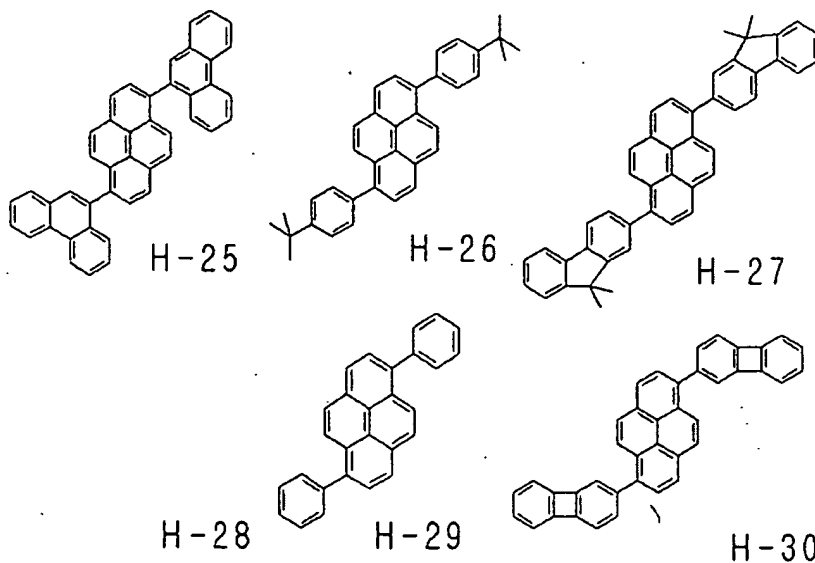
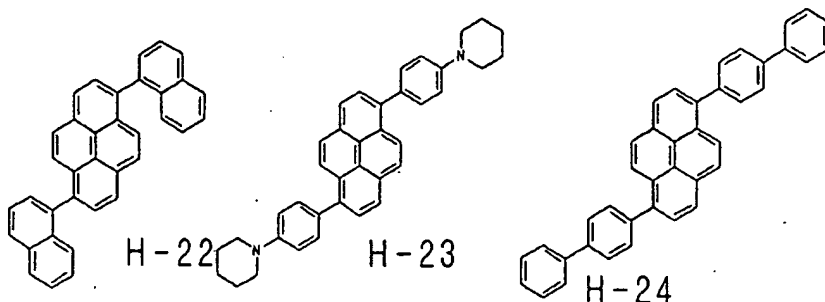
Wherein, the X is selected from a group consisting of naphthalene, anthracene, phenanthrene, pyrene, perylene, and quinoline and at least one of the B1 and B2 is selected from a group consisting of aryl, alkylaryl, alkoxyaryl, arylaminoaryl and alkylaminoaryl.

4. The organic electroluminescent device of claim 3, wherein at least one of the B1 and B2 is selected from phenyl, biphenyl, pyridyl, naphthyl, tritylphenyl, biphenylenyl, anthryl, phenanthryl, pyrenyl, perylenyl, quinolyl, isoquinolyl, fluorenyl, terphenyl, tolyl, xylyl, methylnaphthyl, and hydrogen.

5. The organic electroluminescent device of claim 1, wherein the material forming the emitting layer together with the material of the chemical formula 1 is one of following formulas.





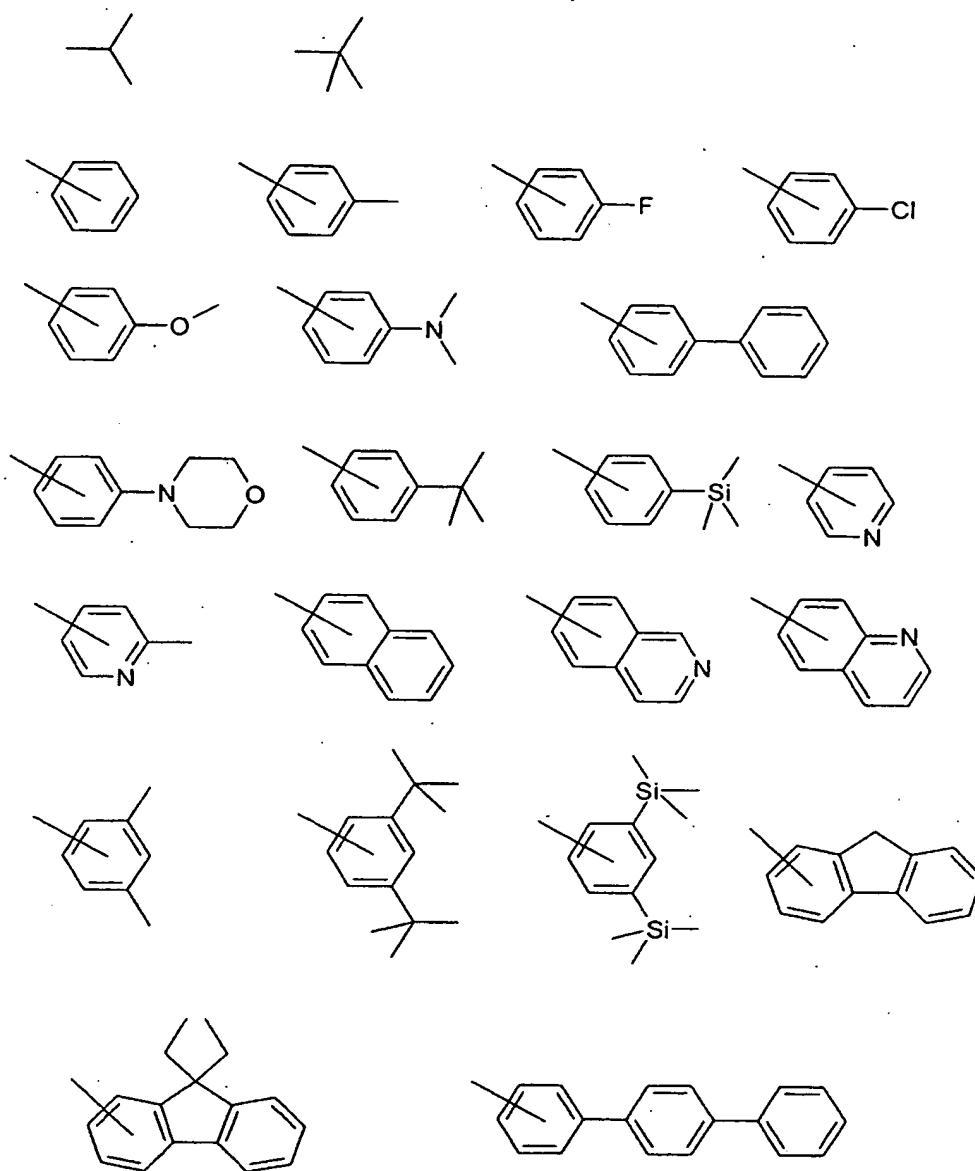


6. The organic electroluminescent device of claim 1, wherein at least one of the A1 and A2 is selected from a substituted or non-substituted phenyl, a substituted or non-substituted biphenyl, a substituted or non-substituted pyridyl, a substituted or non-substituted naphthyl, a substituted or non-substituted quinolyl, a substituted or non-substituted isoquinolyl, a substituted or non-substituted fluorenyl, a substituted or non-substituted terphenyl, methyl, ethyl, propyl, i-propyl, and t-butyl.

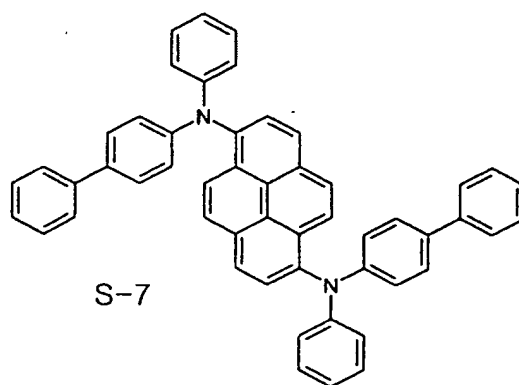
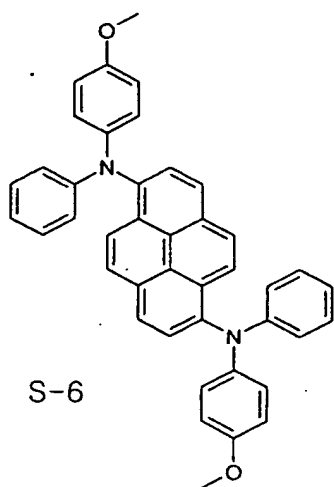
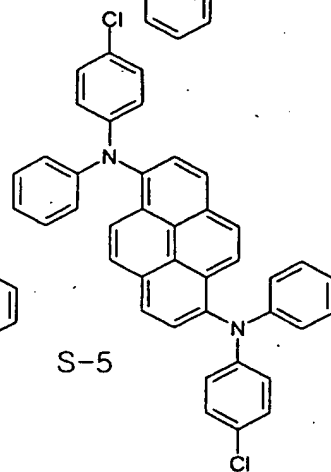
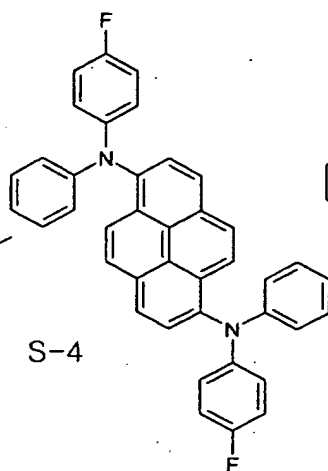
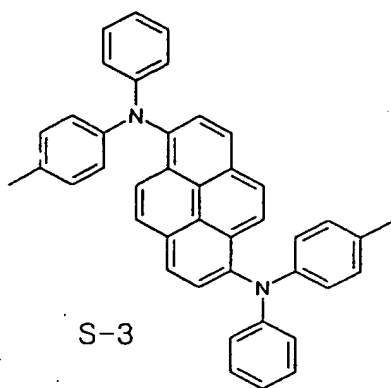
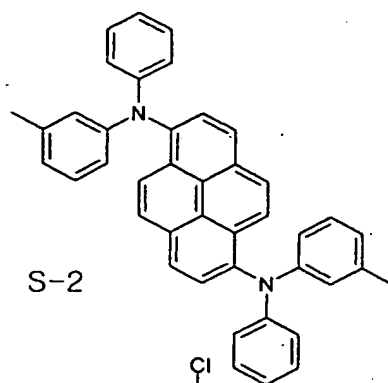
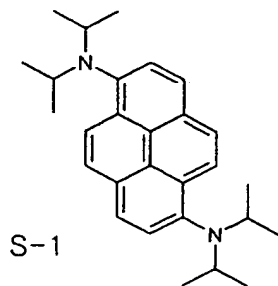
7. The organic electroluminescent device of claim 1, wherein a substituent of each substituted A1 and A2 is at least one and selected from alkyl, alkoxy, alkylamino, alkylsilyl, halogen, aryl, aryloxy, arylamino, arylsilyl and hydrogen.

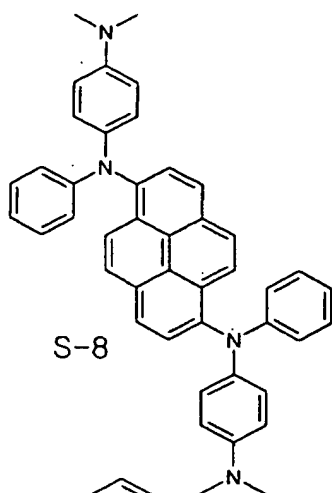
8. The organic electroluminescent device of claim 7, wherein the substituent is one selected from methyl, ethyl, propyl, i-propyl, t-butyl, cyclohexyl, methoxy, ethoxy, propoxy, butoxy, dimethylamino, trimethylsilyl, fluorine, choline, phenoxy, tolyloxy, dimethylamino, diethylamino, diphenylamino, and triphenylsilyl.

9. The organic electroluminescent device of claim 1, wherein at least one of the A1 and A2 in one of following chemical formulas.

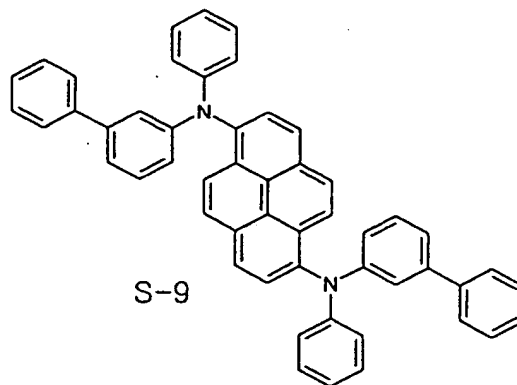


10. The organic electroluminescent device of claim 1, wherein the blue emitting material is at least one of following chemical formulas.

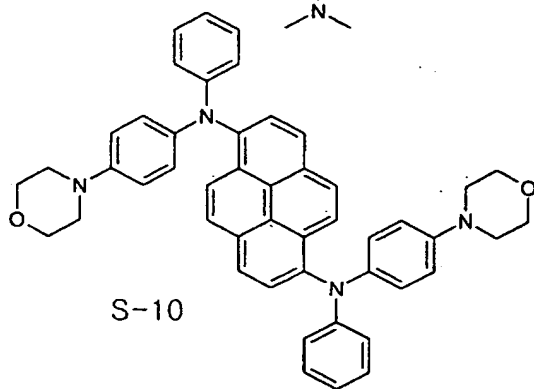




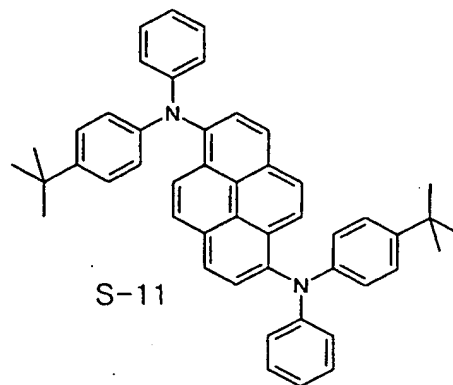
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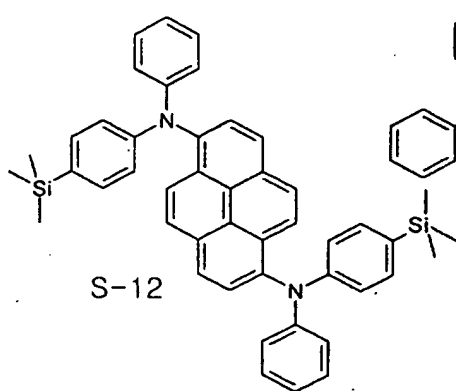
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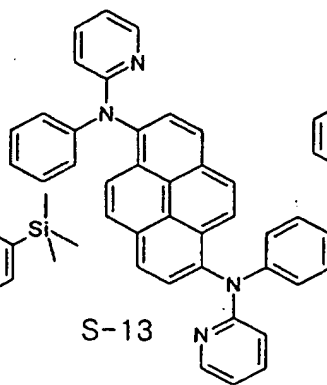
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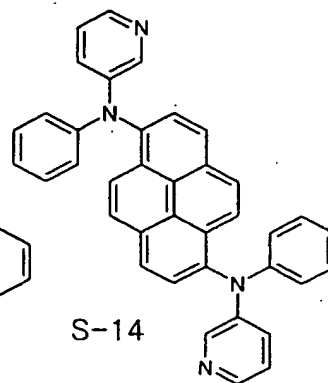
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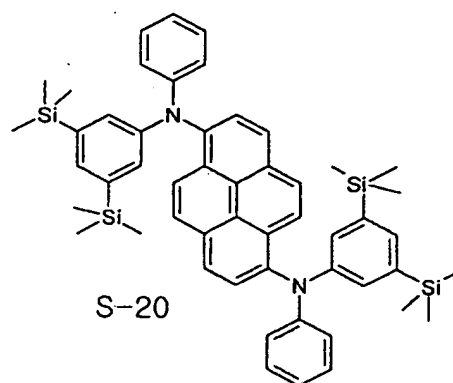
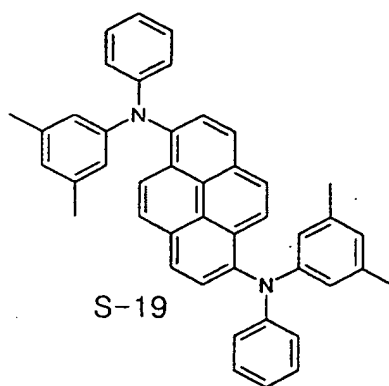
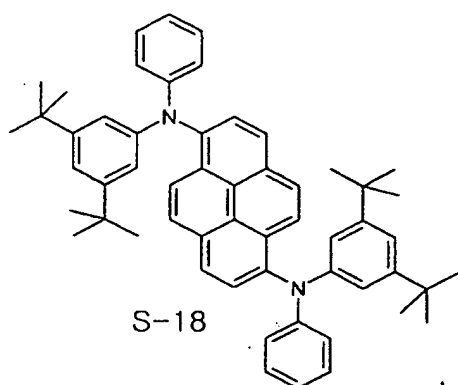
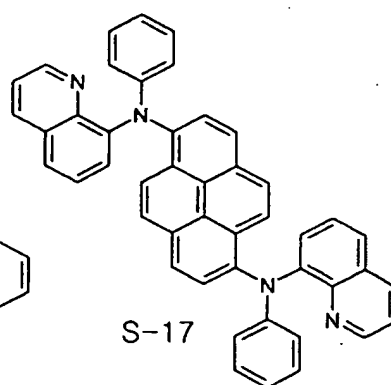
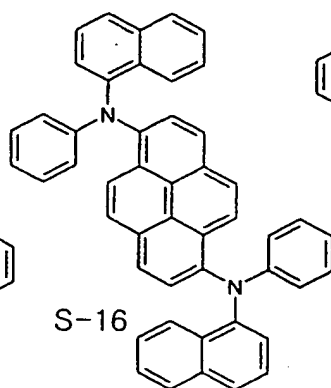
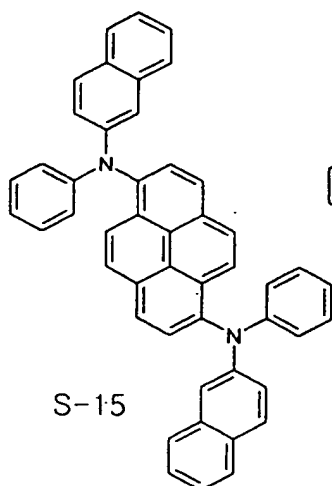
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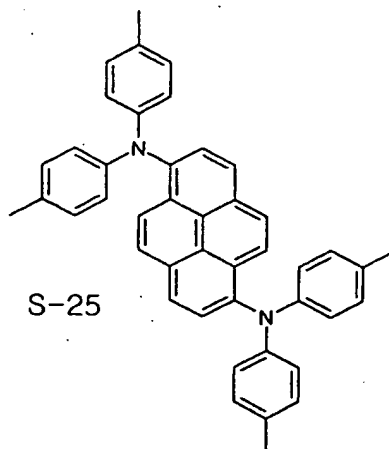
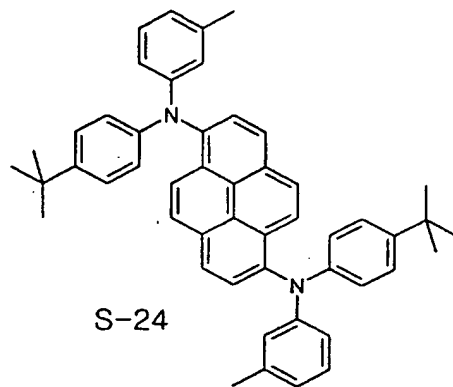
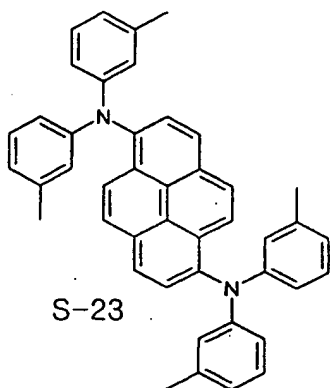
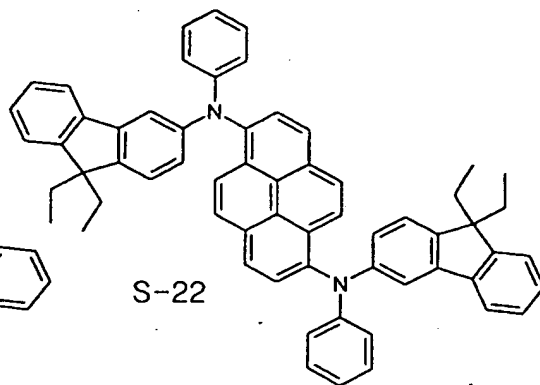
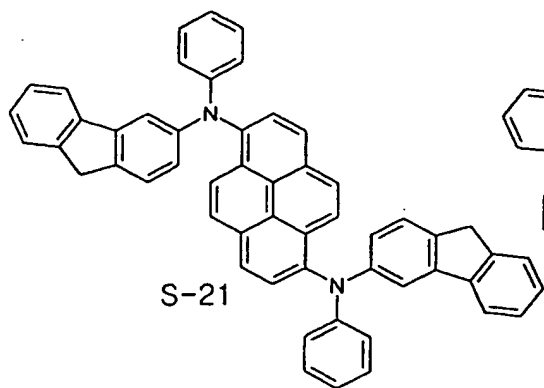


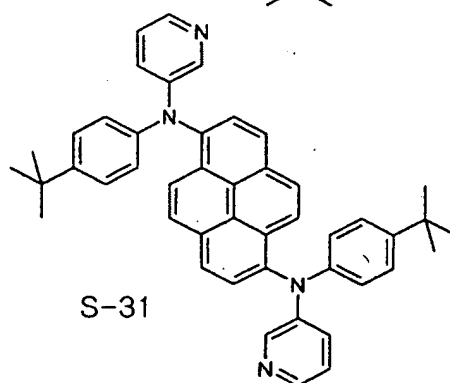
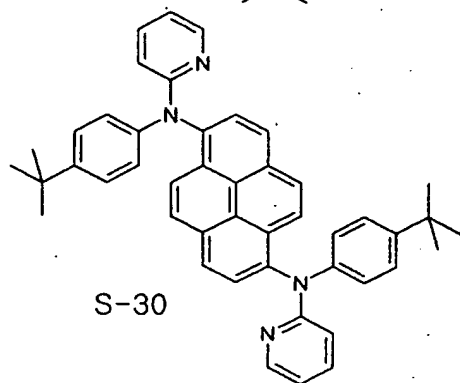
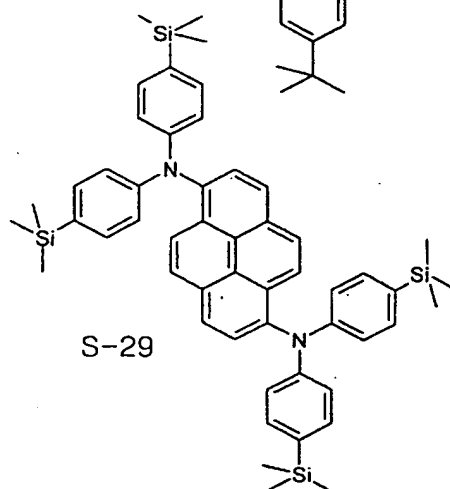
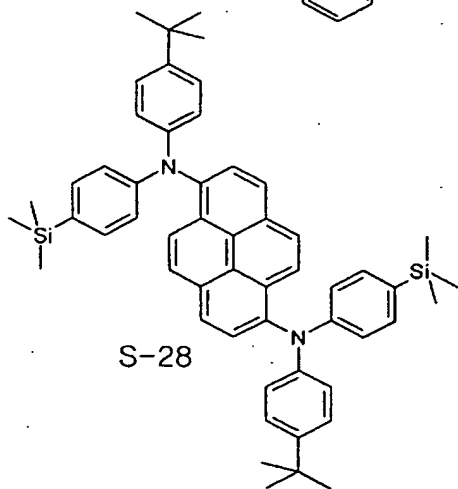
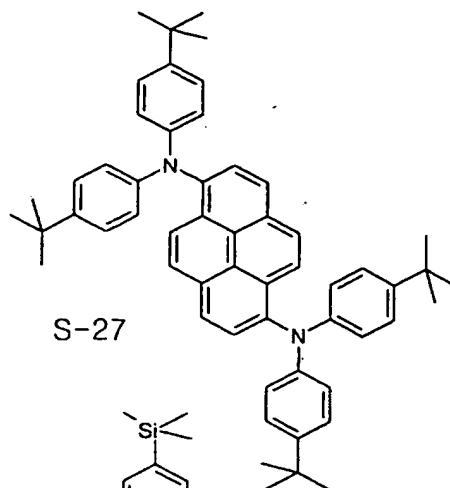
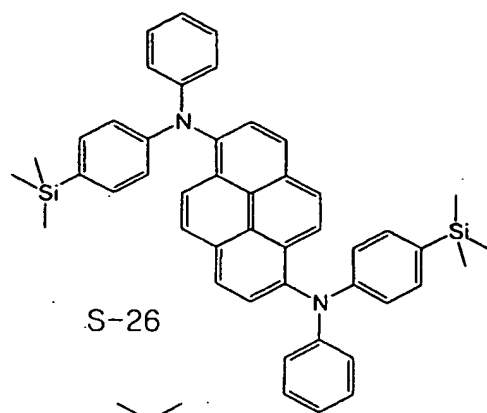
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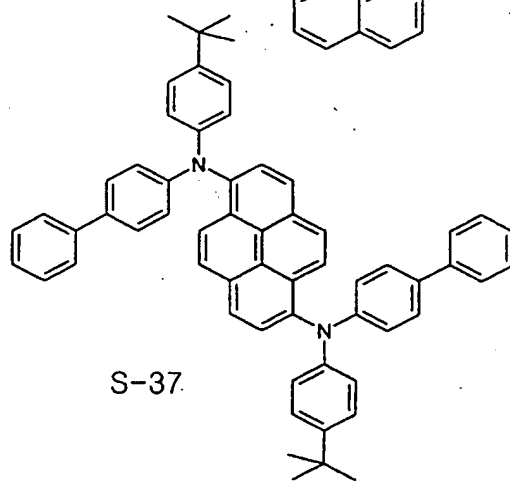
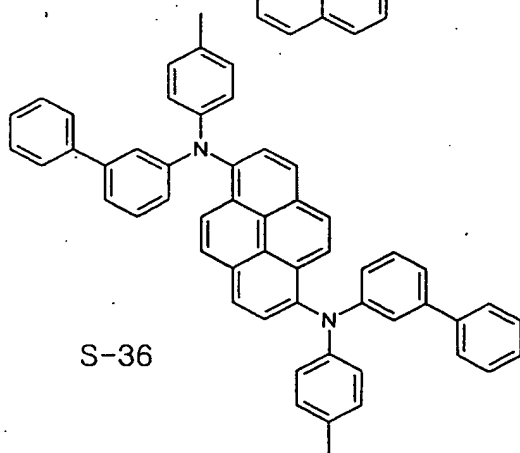
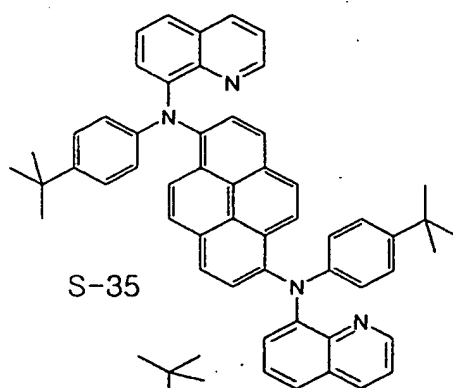
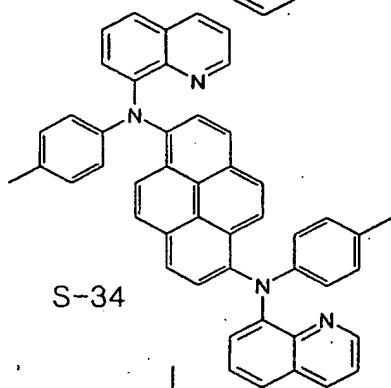
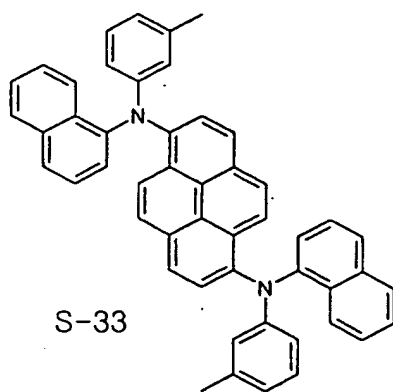
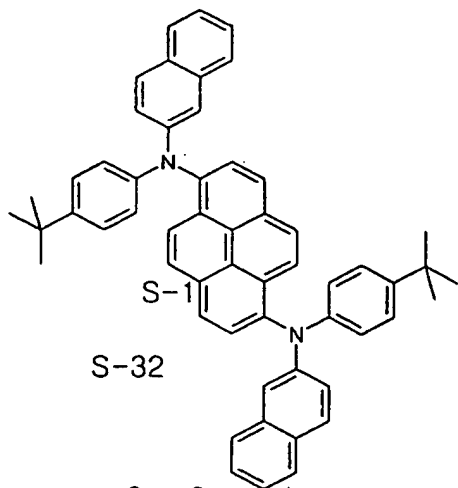


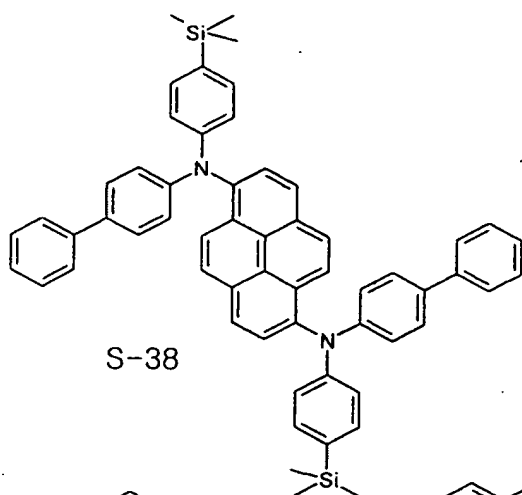
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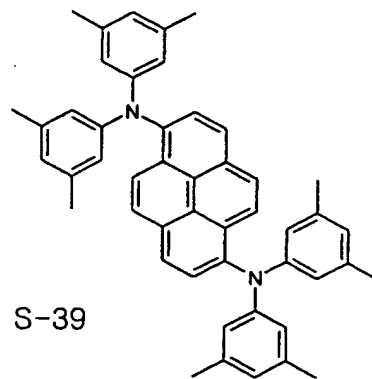




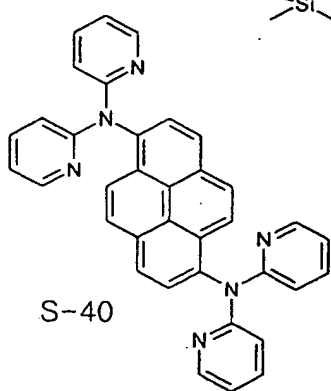




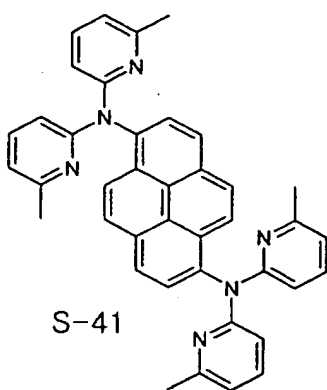
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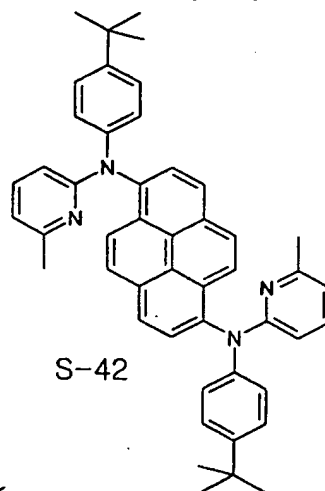
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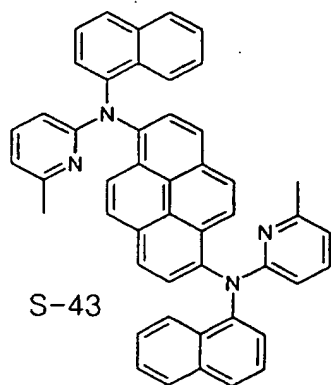
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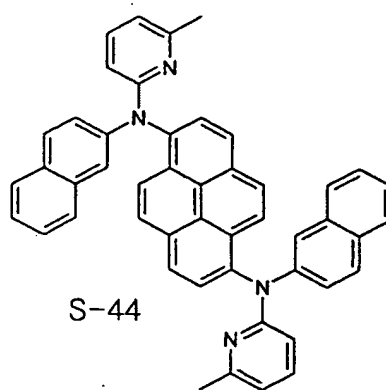
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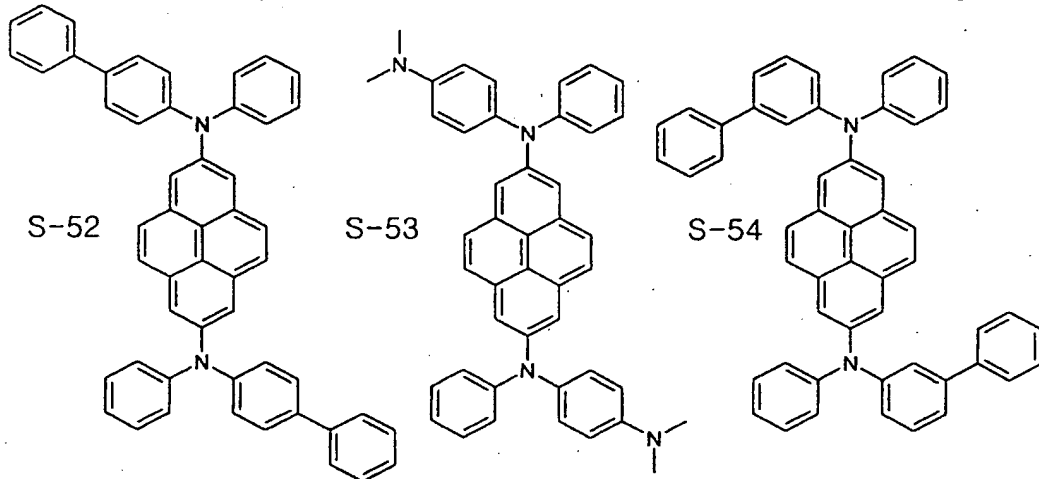
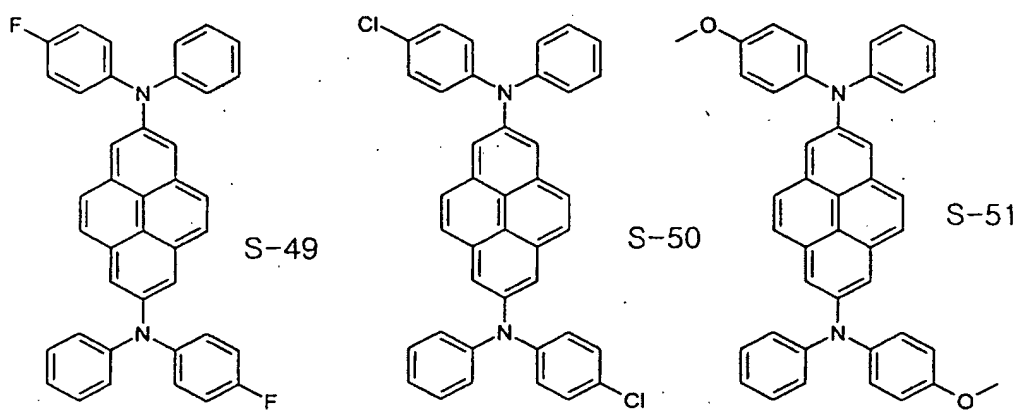
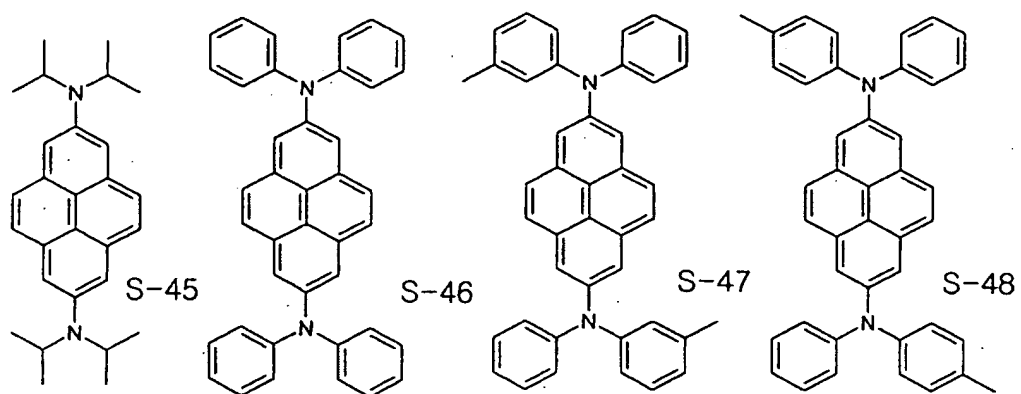
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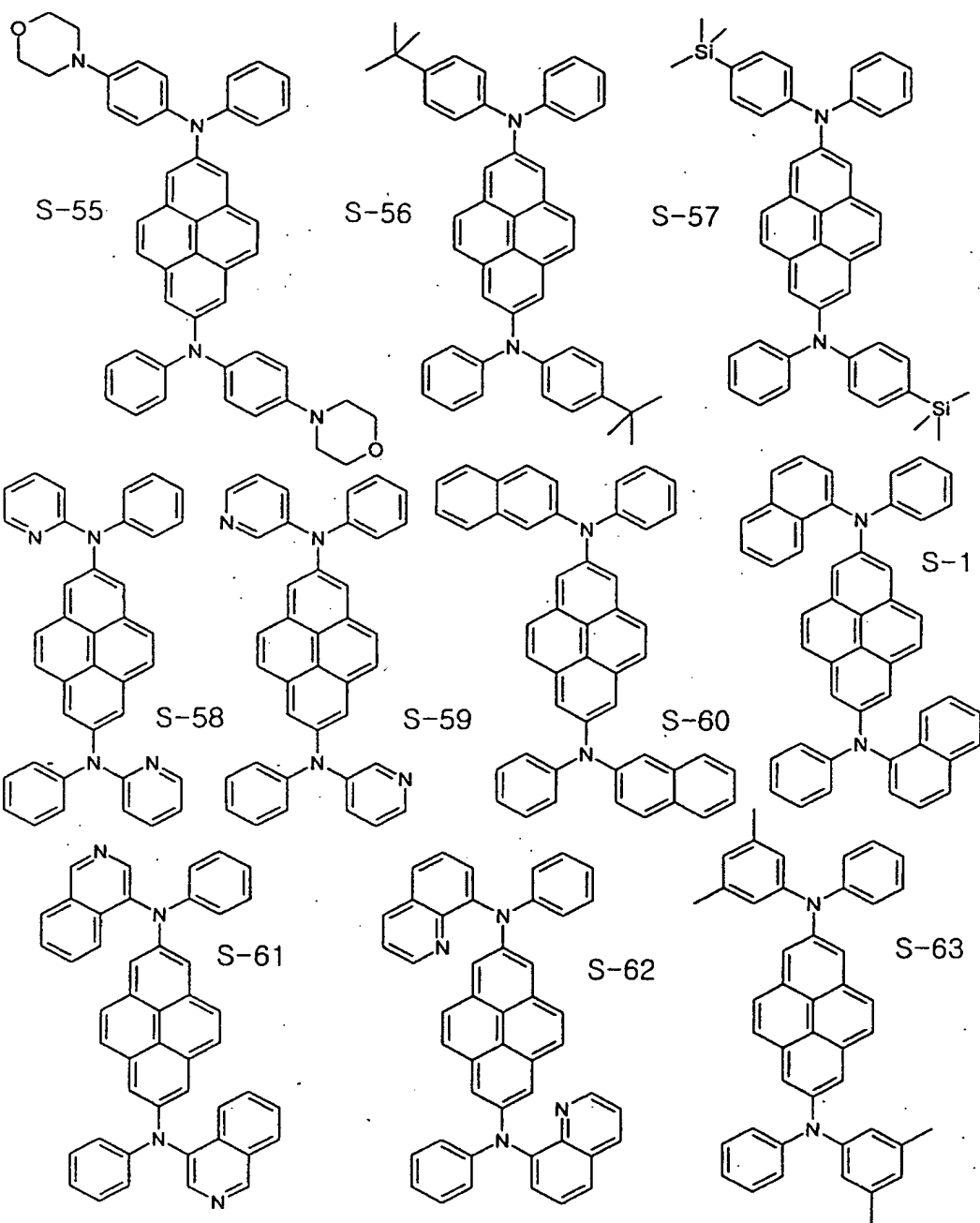


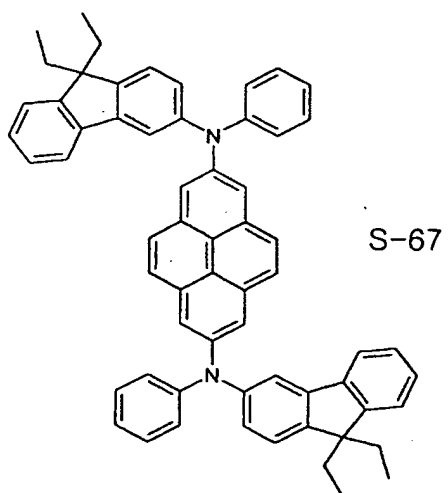
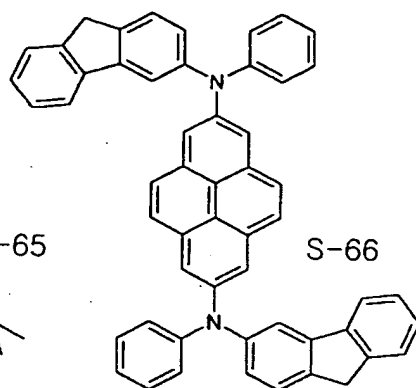
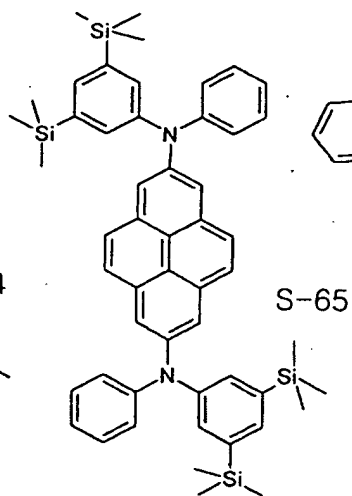
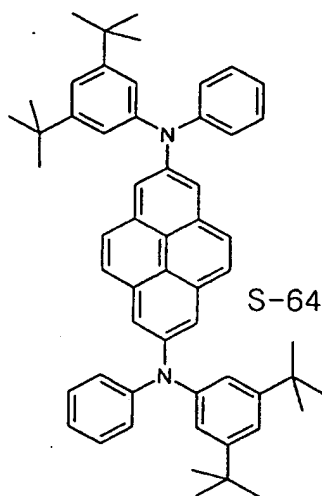
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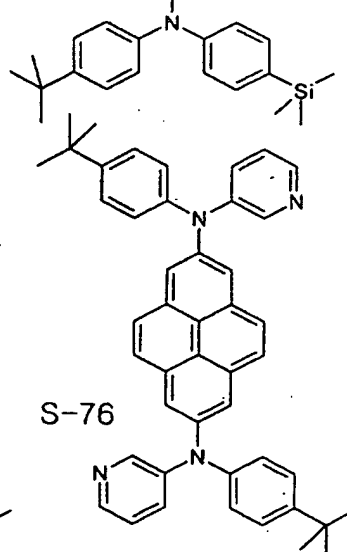
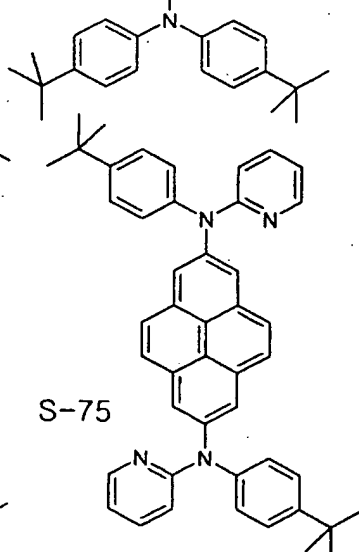
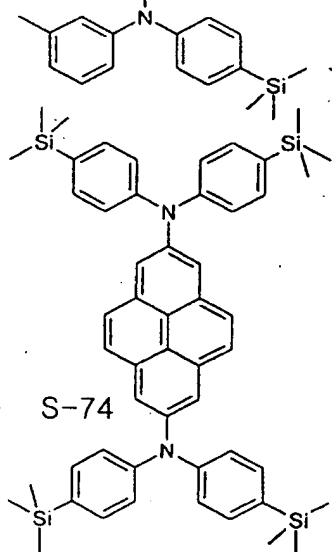
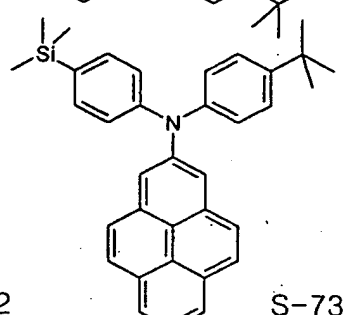
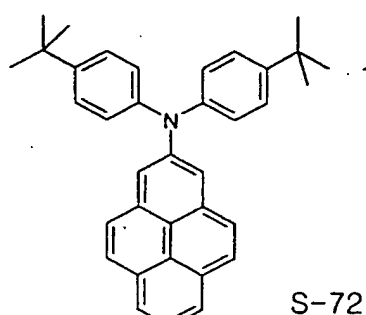
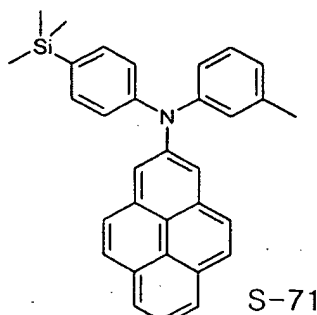
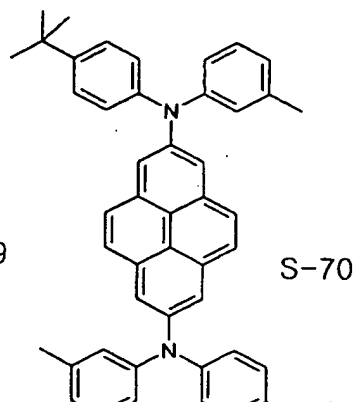
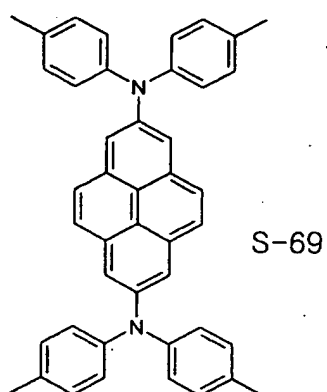
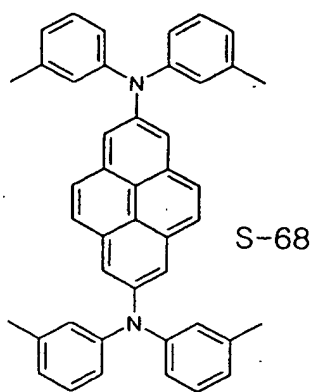


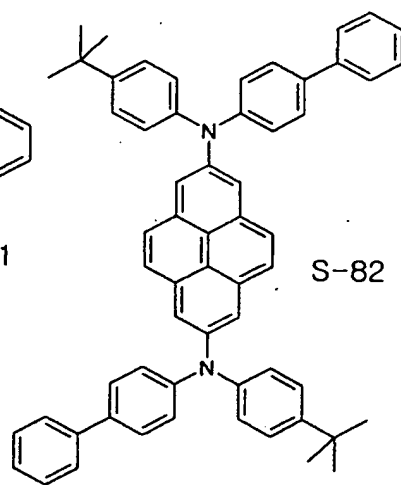
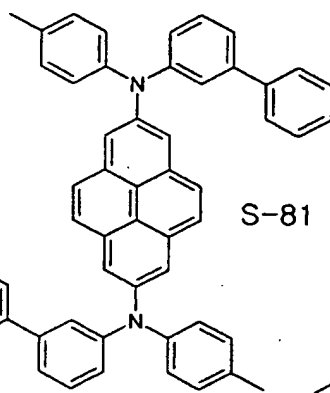
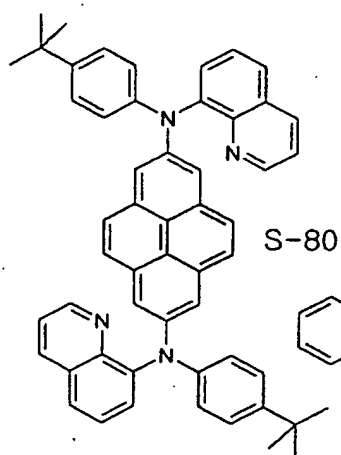
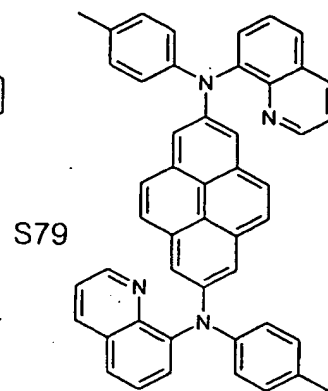
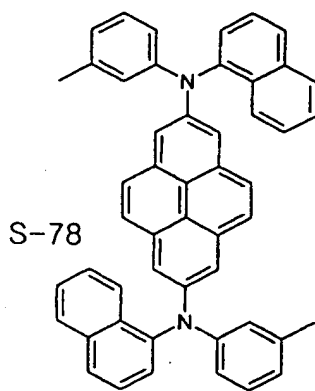
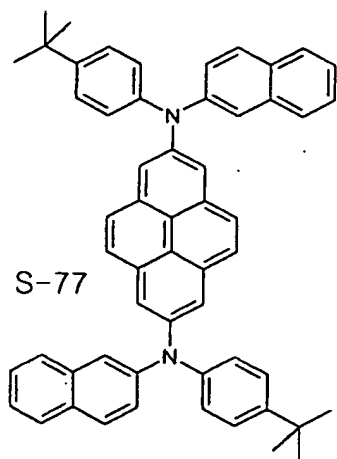
S-44

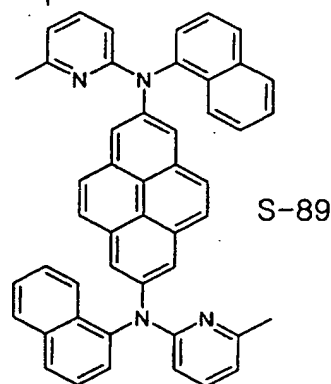
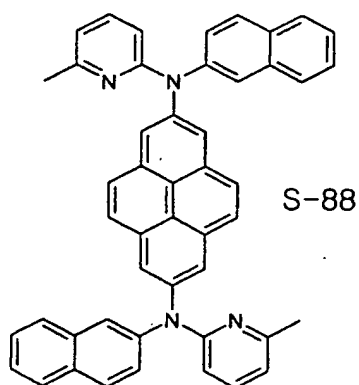
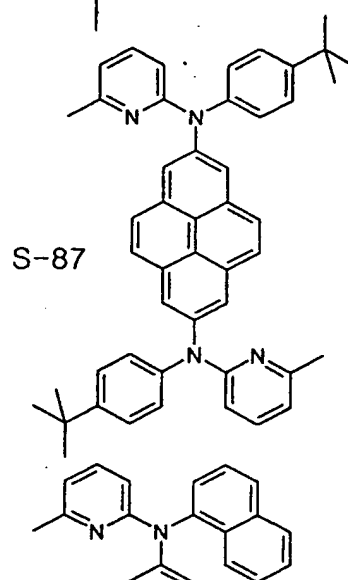
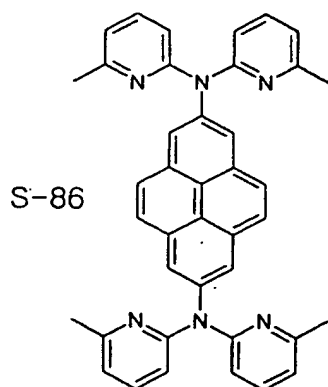
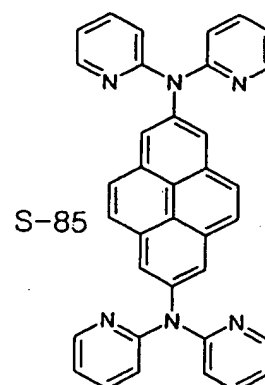
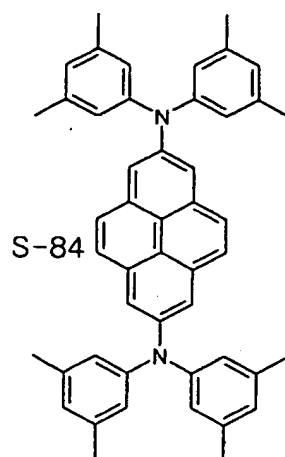
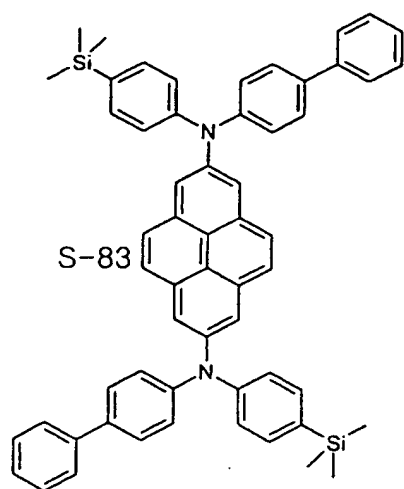












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L1

STR

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L2

0 SEA SSS SAM L1

L3

SCR 1841

L4

0 SEA SSS SAM L1 AND L3

L5

STR L1

L6

3 SEA SSS SAM L5 AND L3

D SCAN

L7

SCR 1045

L8

4 SEA SSS SAM L5 AND L3 AND L7

D SCAN

D QUE STAT L8

L9

STR L5

L10

SCR 1844

L11

5 SEA SSS SAM L9 AND L10 AND L7

D SCAN

D QUE STAT L11

L12

2868 SEA SSS FUL L9 AND L10 AND L7

SAV L12 THO778/A

L13

1 SEA ABB=ON PLU=ON 76656-51-4/RN

D SCAN

D RSD

L14

1 SEA ABB=ON PLU=ON PYRIDINE/CN

D RSD

L15

12351 SEA ABB=ON PLU=ON 3593.5.31/RID

L16

1267976 SEA ABB=ON PLU=ON 46.156.30/RID

L17

277 SEA ABB=ON PLU=ON L15 AND L16

L18

4222 SEA ABB=ON PLU=ON L15 AND 2-6/N

L19

196 SEA ABB=ON PLU=ON L17 AND 2-6/N

L20

4026 SEA ABB=ON PLU=ON L18 NOT L19

FILE 'HCAPLUS' ENTERED AT 11:08:25 ON 12 JUL 2005

L21

785 SEA ABB=ON PLU=ON L12

L22

118 SEA ABB=ON PLU=ON L19

L23

2667 SEA ABB=ON PLU=ON L20

L24

2730 SEA ABB=ON PLU=ON L22 OR L23

L25

223 SEA ABB=ON PLU=ON L24 (L) DEV/RL

L26

105 SEA ABB=ON PLU=ON L25 (L) (?LUMINES? OR ?LIGHT? OR LUMIN? OR ?EMIT? OR LED OR OLED OR EL OR OEL)

L27

92 SEA ABB=ON PLU=ON L26 AND OPTIC?/SC

L28

16 SEA ABB=ON PLU=ON L27 AND BLUE?

L29

290 SEA ABB=ON PLU=ON L21 (L) DEV/RL

L30

261 SEA ABB=ON PLU=ON L29 (L) (?LUMINES? OR ?LIGHT? OR LUMIN? OR ?EMIT? OR LED OR OLED OR EL OR OEL)

L31

237 SEA ABB=ON PLU=ON L30 AND OPTIC?/SC

L32

81 SEA ABB=ON PLU=ON L31 AND BLUE?

D FHITSTR

D FHITSTR 2-3

L33

46 SEA ABB=ON PLU=ON L30 (L) BLUE?

L34

6 SEA ABB=ON PLU=ON L26 (L) BLUE?

L35

18 SEA ABB=ON PLU=ON L26 AND BLUE?

D FHITSTR

D FHITSTR 2-3

L36

63 S L33 OR L35

FILE 'REGISTRY' ENTERED AT 11:20:40 ON 12 JUL 2005

FILE LREGISTRY

LREGISTRY IS A STATIC LEARNING FILE

FILE REGISTRY

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

FILE HCAPLUS

=> d que 121

L7

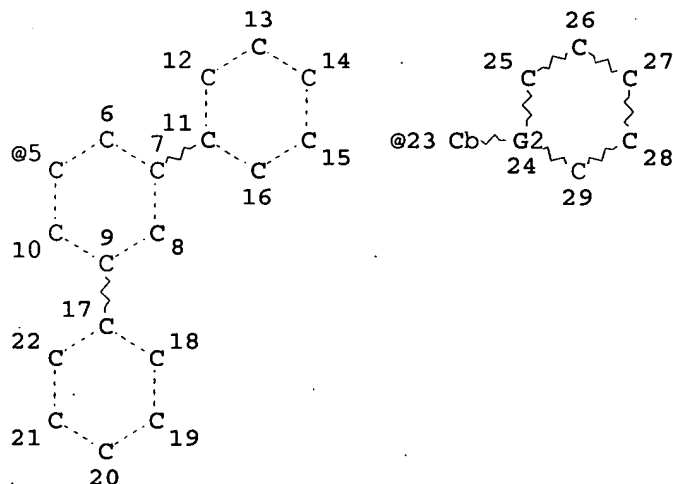
SCR 1045

L9

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VAR G2=C/N

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GGCAT IS MCY UNS AT 23

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ECOUNT IS M10-X19 C AT 2

GRAPH ATTRIBUTES:

RSPEC 22 9 11 25

NUMBER OF NODES IS 29

STEREO ATTRIBUTES: NONE

L10

SCR 1844

L12

2868 SEA FILE=REGISTRY SSS FUL L9 AND L10 AND L7

L21

785 SEA FILE=HCAPLUS ABB=ON PLU=ON L12

=> d que 124

L15

12351 SEA FILE=REGISTRY ABB=ON PLU=ON 3593.5.31/RID

L16

1267976 SEA FILE=REGISTRY ABB=ON PLU=ON 46.156.30/RID

L17 277 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND L16
 L18 4222 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND 2-6/N
 L19 196 SEA FILE=REGISTRY ABB=ON PLU=ON L17 AND 2-6/N
 L20 4026 SEA FILE=REGISTRY ABB=ON PLU=ON L18 NOT L19
 L22 118 SEA FILE=HCAPLUS ABB=ON PLU=ON L19
 L23 2667 SEA FILE=HCAPLUS ABB=ON PLU=ON L20
 L24 2730 SEA FILE=HCAPLUS ABB=ON PLU=ON L22 OR L23

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L36 ANSWER 1 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:497305 HCAPLUS
 DOCUMENT NUMBER: 143:50494
 TITLE: Organic electroluminescent devices
 INVENTOR(S): Deaton, Joseph C.; Hatwar, Tukaram K.;
 Kondakov, Denis Y.
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 22 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005123794	A1	20050609	US 2003-729688	2003 1205
WO 2005057679	A1	20050623	WO 2004-US39845	2004 1129

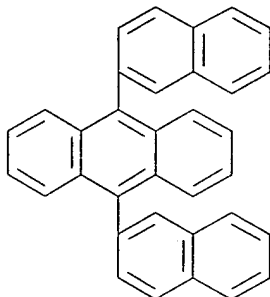
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
 CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
 ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
 KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
 MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,
 PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
 TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,
 CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT,
 LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG,
 CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-729688 A
 2003
 1205

AB Disclosed is an electroluminescent device comprising a cathode and anode, and, located therebetween, at least one (A) layer containing a fluorescent material that emits blue light and a hydrocarbon host and at least one (B) layer containing a phosphorescent yellow-light-emitting material. The invention also provides a display or area lighting device and a process for emitting light

using the device. The device provides useful light emission.

IT 122648-99-1
(organic electroluminescent devices with blue-emitting and yellow-emitting layers)
RN 122648-99-1 HCAPLUS
CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



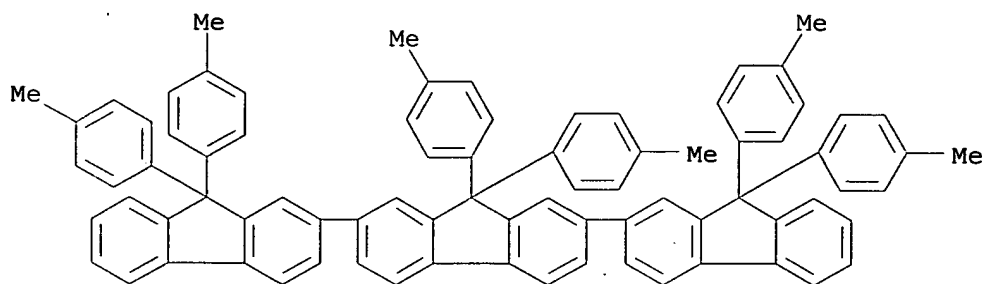
IC ICM H05B033-14
INCL 428690000; 428917000; 313504000; 313506000; 313112000; 257098000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
IT 122648-99-1 274905-73-6 337526-88-2
337526-95-1 343978-79-0 468732-34-5 625094-12-4
852151-18-9 852151-20-3
(organic electroluminescent devices with blue-emitting and yellow-emitting layers)

L36 ANSWER 2 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:310132 HCAPLUS
TITLE: 4,5-Diazafluorene-Incorporated
Ter(9,9-diarylfluorene): A Novel Molecular
Doping Strategy for Improving the Electron
Injection Property of a Highly Efficient OLED
Blue Emitter
AUTHOR(S): Wong, Ken-Tsung; Chen, Ruei-Tang; Fang,
Fu-Chuan; Wu, Chung-Chih; Lin, Yu-Ting
CORPORATE SOURCE: Department of Chemistry, National Taiwan
University, Taipei, 106, Taiwan
SOURCE: Organic Letters (2005), 7(10), 1979-1982
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB An organic light-emitting device device with blue emission characteristic of terfluorene was achieved by using a mol. doping strategy in which 4,5-diazafluorene was incorporated as the substitution group of terfluorene to facilitate electron injection from the metal cathode without altering emission characteristics.

IT 474918-42-8
(4,5-diazafluorene-incorporated ter(9,9-diarylfluorene) blue emitter for electroluminescent devices)

RN 474918-42-8 HCAPLUS
CN 2,2':7',2''-Ter-9H-fluorene, 9,9,9',9'',9''',9'''-hexakis(4-methylphenyl)- (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 474918-42-8

(4,5-diazafluorene-incorporated ter(9,9-diarylfluorene)
blue emitter for electroluminescent
devices)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 3 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:259433 HCAPLUS

DOCUMENT NUMBER: 142:287694

TITLE: Blue organic electroluminescent devices having
a non-hole-blocking layer

INVENTOR(S): Liao, Liang-Sheng; Klubek, Kevin P.

PATENT ASSIGNEE(S): Eastman Kodak Company, USA

SOURCE: U.S. Pat. Appl. Publ., 16 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005064235	A1	20050324	US 2003-669451	2003 0924
US 6881502	B2	20050419		
WO 2005038941	A2	20050428	WO 2004-US29593	2004 0913
WO 2005038941	A3	20050616		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.:

US 2003-669451

A

2003

0924

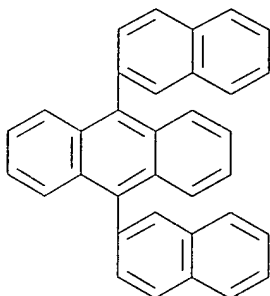
AB An organic electroluminescent device includes an anode; a hole-transporting layer disposed over the anode; a light-emitting layer disposed over the hole-transporting layer for producing blue light in response to hole-electron recombination, wherein the light emitting layer includes at least one host material and at least one dopant material; a non-hole-blocking buffer layer formed in contact with the light-emitting layer, wherein the non-hole-blocking buffer layer has substantially the same ionization potential and the same electron affinity as those of one of the host materials in the light-emitting layer; an electron-transporting layer disposed over the non-hole-blocking buffer layer; and a cathode disposed over the electron-transporting layer.

IT 122648-99-1

(blue organic electroluminescent devices
having non-hole-blocking layer)

RN 122648-99-1 HCAPLUS

CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



IC ICM H05B033-12

INCL 428690000; 428917000; 313504000; 313506000

CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 1662-01-7, BPhen 122648-99-1 146162-54-1, B-Alq
274905-73-6

(blue organic electroluminescent devices
having non-hole-blocking layer)

L36 ANSWER 4 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:248982 HCAPLUS

DOCUMENT NUMBER: 142:471804

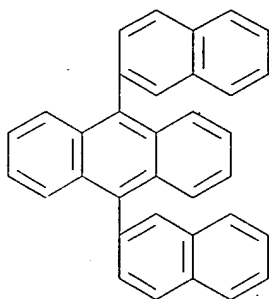
TITLE: New Benzo[b]furans as Electroluminescent
Materials for Emitting Blue LightAUTHOR(S): Hwu, Jih Ru; Chuang, Kao-Shuh; Chuang, Shih
Hsien; Tsay, Shwu-ChenCORPORATE SOURCE: Organosilicon and Synthesis Laboratory
Department of Chemistry, National Tsing Hua
University, Taichung, Hsinchu, 30013, Taiwan

SOURCE: Organic Letters (2005), 7(8), 1545-1548

CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal
LANGUAGE: English
AB New functionalized mono- and bis-benzo[b]furan derivs. were synthesized and developed as blue-light emitting materials. They possessed a CN, CHO, CH:CHPh, CH:CPh₂, or CH:CHCOOH group at the C4-position. Two benzo[b]furan nuclei in bis-benzo[b]furan derivs. were connected by a divinylbenzene bridge. With good volatility and thermal stability, a bis-benzo[b]furan was fabricated as a device. It emitted blue light with brightness 53430 cd/m² (at 15.5 V) and high maximum external quantum efficiency 3.75% (at 11 V).
IT 122648-99-1, ADN
(ADN, host material layer; new benzo[b]furans as electroluminescent materials for emitting blue light and device fabrication therefrom)
RN 122648-99-1 HCAPLUS
CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
IT 122648-99-1, ADN
(ADN, host material layer; new benzo[b]furans as electroluminescent materials for emitting blue light and device fabrication therefrom)
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

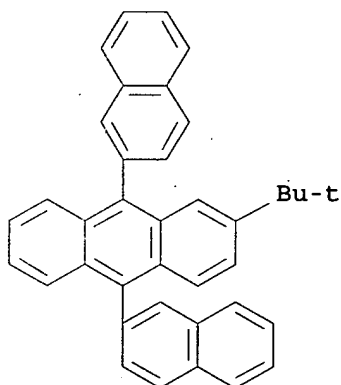
L36 ANSWER 5 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:211981 HCAPLUS
DOCUMENT NUMBER: 142:453611
TITLE: Color-saturated and highly efficient top-emitting organic light-emitting devices
AUTHOR(S): Hsu, Shih-Feng; Lee, Chung-Chun; Hwang, Shiao-Wen; Chen, Hsian-Hung; Chen, Chin H.; Hu, Andrew T.
CORPORATE SOURCE: Microelectronics and Information System Research Center, Department of Applied Chemistry, National Chiao Tung University, Hsinchu, 30056, Taiwan
SOURCE: Thin Solid Films (2005), 478(1-2), 271-274
CODEN: THSFAP; ISSN: 0040-6090
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Color-saturated and highly efficient top-emitting organic light-emitting

devices (OLEDs) were developed. The device structure studied was glass/reflective silver/indium-tin oxide (ITO; 50, 75, 100, 125 and 150 nm, resp.)/organic electroluminescent (EL) stack/calcium (200 Å)/ silver (150 Å). By changing the thicknesses of ITO from 50-150 nm in the reflective ITO/Ag anode, different emissive colors from bluish green to orange can be obtained from aluminum tris(8-hydroxyquinoline) (Alq3) emitter. By using 2-{2-(t-butyl)-6-[(E)-2-(1,1,7,7-tetramethyl-2,3,6,7-tetrahydro-1H,5H-pyrido[3,2,1-ij]quinoline-9-yl)-1-ethenyl]-4H-4-pyranylidene}malonitrile (DCJTB), 10-(1,3-benzothiazol-2-yl)-1,1,7,7-tetramethyl-2,3,6,7-tetrahydro-1H,5H,11H-pyrano[2,3-f]pyrido[3,2,1-ij]quinoline-11-one (C-545T) and p-bis(p-N,N-di-phenyl-aminostyryl)benzene (DSA-ph) as dopants, highly saturated red, green, and blue (RGB) emissions with Commission Internationale de L'Eclairage chromaticity coordinates of (0.64, 0.36), (0.14, 0.75) and (0.14, 0.08) were obtained, resp.

IT 274905-73-6, TBADN
(TBADN, host for **blue** dopant; color-saturated and highly efficient top-emitting organic light-emitting devices)

RN 274905-73-6 HCAPLUS

CN Anthracene, 2-(1,1-dimethylethyl)-9,10-di-2-naphthalenyl- (9CI)
(CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 274905-73-6, TBADN
(TBADN, host for **blue** dopant; color-saturated and highly efficient top-emitting organic light-emitting devices)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 6 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:127729 HCAPLUS

DOCUMENT NUMBER: 143:34347

TITLE: Synthesis and optoelectronic properties of a novel anthracene derivative for blue light emission

AUTHOR(S): Xu, Li-Ling; Zhao, Li-Qun; Zhang, Xi-Qin; Zhou, Gang; Chen, Jiang-Shan; Cheng, Yan-Xiang; Geng, Yan-Hou; Ma, Dong-Ge; Wang,

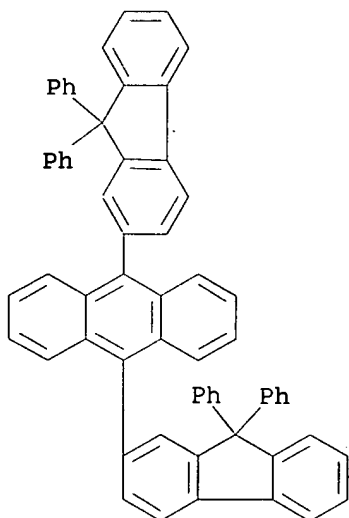
CORPORATE SOURCE: Li-Xiang
Shenyang Institute of Chemical Technology,
Shengyang, Peop. Rep. China
SOURCE: Yingyong Huaxue (2005), 22(1), 114-116
CODEN: YIHUED; ISSN: 1000-0518
PUBLISHER: Kexue Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB A novel blue-light-emitting material, 9,10-bis(9,9-diphenylfluorenyl) anthracene(DPFA) was synthesized and it's optoelectronic properties were studied. Organic light-emitting diodes(OLEDs) has been fabricated and showed efficient blue emission at 445 nm with excellent color purity. The brightness of the device is up to 2 433 cd/cm2 with a high luminescence efficiency of 3.53 cd/A(3.26 lm/W).

IT 653599-47-4P
(preparation and optoelectronic properties of novel anthracene derivative for **blue light** emission)

RN 653599-47-4 HCAPLUS

CN Anthracene, 9,10-bis(9,9-diphenyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 76

IT 653599-47-4P
(preparation and optoelectronic properties of novel anthracene derivative for **blue light** emission)

L36 ANSWER 7 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:57666 HCAPLUS

DOCUMENT NUMBER: 142:165277

TITLE: Organic electroluminescent devices containing oligonaphthalene compounds and showing stable blue emission

INVENTOR(S): Takada, Kazunori; Sakamoto, Hidesaku;
Ichimura, Mari; Tamura, Shinichiro

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005019219	A2	20050120	JP 2003-182779	2003 0626

PRIORITY APPLN. INFO.: JP 2003-182779

2003
0626

OTHER SOURCE(S): MARPAT 142:165277

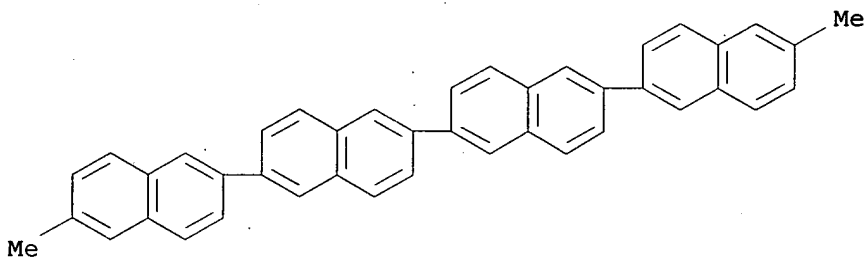
AB The devices, showing long service life and high luminescent efficiency, have emitting layers containing [C1-4 alkyl(oxy)- and/or amino-substituted] di-, tri-, and/or tetranaphthalene compds.

IT 828269-25-6

(emitting layers; organic electroluminescent devices containing oligonaphthalene compds. and showing stable blue emission)

RN 828269-25-6 HCAPLUS

CN 2,2':6',2'':6'',2''':-Quaternaphthalene, 6,6'''-dimethyl- (9CI)
(CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06; H05B033-22; C07C015-24; C07C211-58

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 25

IT 828269-25-6 828269-26-7 828269-27-8

828269-28-9

(emitting layers; organic electroluminescent devices containing oligonaphthalene compds. and showing stable blue emission)

IT 647836-55-3P, 2,2':6',2'':6'',2''':-Quaternaphthalene

828269-29-0P, 1,1':4',1'':4'',1''':-Quaternaphthalene

828269-30-3P

(emitting layers; organic electroluminescent devices containing oligonaphthalene compds. and showing stable blue emission)

L36 ANSWER 8 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:33507 HCAPLUS

DOCUMENT NUMBER: 142:102878
 TITLE: 9,10-Bis(5,6,7,8-tetrahydro-2-naphthyl)anthracenes, their short-step manufacture, and blue-emitting organic electroluminescent devices using them
 INVENTOR(S): Ichimura, Mari; Takada, Kazunori; Ujiie, Yasuharu; Tamura, Shinichiro
 PATENT ASSIGNEE(S): Sony Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005008600	A2	20050113	JP 2003-177423	2003 0623
PRIORITY APPLN. INFO.:			JP 2003-177423	2003 0623

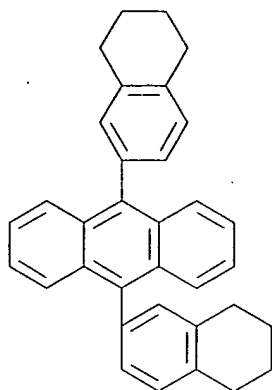
OTHER SOURCE(S): MARPAT 142:102878
 GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
 *

AB The anthracenes I [R1-R4 = H, F, CF₃, CN, (un)substituted alkyl, (un)substituted alkoxy, (un)substituted phenyl(oxy), (un)substituted 1- or 2-naphthyl(oxy)] are manufactured by converting 5,6,7,8-tetrahydro-2-naphthols into corresponding boronic acids II or their esters III (R3, R4 = same as above), followed by coupling with 9,10-dihaloanthracenes IV (R1, R2 = same as above; X = Br, iodide, Cl, O3SCF₃). The anthracenes form stable amorphous layers, resulting in organic electroluminescent devices showing elec. and thermal stability.

IT 817627-13-7P
 (shot-step manufacture of bis(tetrahydronaphthyl)anthracenes for blue-emitting organic electroluminescent devices)

RN 817627-13-7 HCAPLUS
 CN Anthracene, 9,10-bis(5,6,7,8-tetrahydro-2-naphthalenyl) - (9CI)
 (CA INDEX NAME)



IC ICM C07C013-58
 ICS C07C001-32; C09K011-06; H05B033-14; H05B033-22
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 25
 IT 817627-13-7P
 (shot-step manufacture of bis(tetrahydronaphthyl)anthracenes for blue-emitting organic electroluminescent devices)

L36 ANSWER 9 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:33498 HCAPLUS

DOCUMENT NUMBER: 142:102877

TITLE: Blue-emitting quaternaphthyl for electroluminescent devices and their manufacture

INVENTOR(S): Takada, Kazunori; Sakamoto, Yukinari; Tamura, Shinichiro

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005008588	A2	20050113	JP 2003-176619	2003 0620

PRIORITY APPLN. INFO.:

JP 2003-176619

2003

0620

OTHER SOURCE(S): MARPAT 142:102877

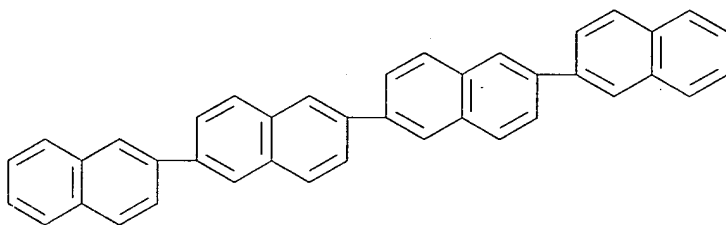
AB Compound 2,2':6',2'':6'',2'''-Quaternaphthalene (I) is manufactured by (1) coupling of [2,2':6',2''-Ternaphthalene]-6'''-X1 (II) with 2-X1-naphthalene (III) [X1, X2 = combination of ≥ 1 groups chosen from bis(trifluoromethanesulfonate ester) residue, iodide, Br, Cl, and F with ≥ 1 groups chosen from boronate ester residue, Mg, Ni, Pd, and Sn] in the presence of Pd catalysts, (2)

coupling of [2,2'-Binaphthalene]-6-X3,6'-X3 (IV) with III [X2, X3 = combination of ≥ 1 groups chosen from bis(trifluoromethanesulfonate ester) residue, iodide, Br, Cl, and F with ≥ 1 groups chosen from boronate ester residue, Mg, and Sn] in the presence of Pd or Ni catalysts, or (3) treatment of Mg with III (X2 = iodide, Br, Cl, F) and coupling of the resulting Grignard reagents with IV [X3 = bis(trifluoromethanesulfonate ester) residue, iodide, Br, Cl, F] in the presence of Pd or Ni catalysts. Thus, II (X1 = Br) was coupled with III [X2 = B(OH)₂] in the presence of Pd(PPh₃)₄ to give I, which was used for an emitter layer for a blue-emitting organic electroluminescent device.

IT 647836-55-3P, 2,2':6',2'':6'',2'''-Quaternaphthalene
(manufacture of **blue-emitting** quaternaphthyl for **electroluminescent** devices by Suzuki coupling or Grignard cross coupling in the presence of Pd or Ni catalysts)

RN 647836-55-3 HCAPLUS

CN 2,2':6',2'':6'',2'''-Quaternaphthalene (9CI) (CA INDEX NAME)



IC ICM C07C015-24
ICS C07C001-32; H05B033-14; C07B061-00; C09K011-06

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 25

IT 647836-55-3P, 2,2':6',2'':6'',2'''-Quaternaphthalene
(manufacture of **blue-emitting** quaternaphthyl for **electroluminescent** devices by Suzuki coupling or Grignard cross coupling in the presence of Pd or Ni catalysts)

L36 ANSWER 10 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:6753 HCAPLUS

DOCUMENT NUMBER: 142:248086

TITLE: Effective color tuning in organic light-emitting diodes based on aluminum tris(5-aryl-8-hydroxyquinoline) complexes

AUTHOR(S): Montes, Victor A.; Li, Gang; Pohl, Radek; Shinar, Joseph; Anzenbacher, Pavel, Jr.

CORPORATE SOURCE: Center for Photochemical Sciences and Department of Chemistry, Bowling Green State University, Bowling Green, OH, 43403, USA

SOURCE: Advanced Materials (Weinheim, Germany) (2004), 16(22), 2001-2003
CODEN: ADVMEW; ISSN: 0935-9648

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Tris(quinolate)Al(III) (Alq₃)-based metallocomplexes with electron-deficient or electron-rich aryl substituents display remarkable **blue-to-red** tuning of both photo- and electroluminescence, covering most of the visible-light region.

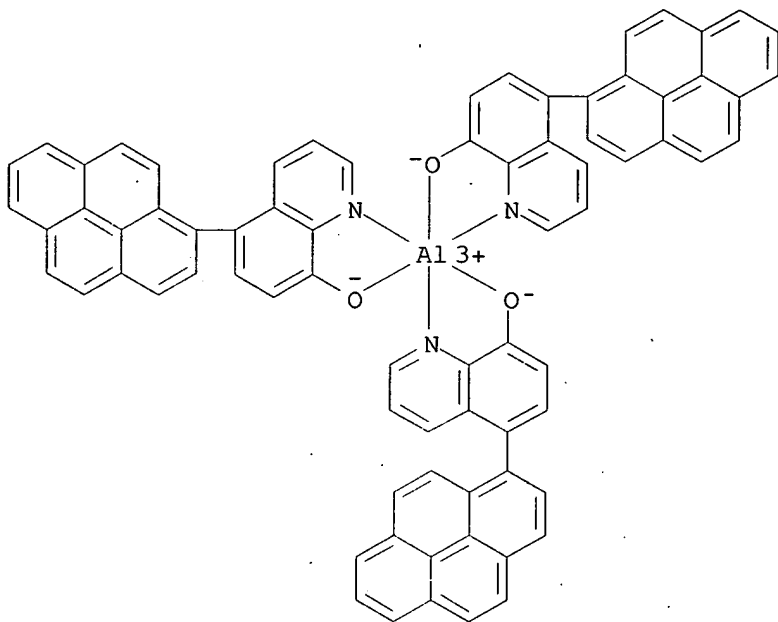
The correlation between the electronic properties of the aryl substituents, highest occupied-LUMO (HOMO-LUMO) gap, and the emissive properties of the complexes suggests this approach may be used to design new light-emitting materials.

IT 676121-04-3

(effective color tuning in organic light-emitting diodes based on aluminum tris(5-aryl-8-hydroxyquinoline) complexes)

RN 676121-04-3 HCAPLUS

CN Aluminum, tris[5-(1-pyrenyl)-8-quinolinolato- κ N1, κ O8]-, (OC-6-22)- (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76, 78

IT 676120-98-2 676120-99-3 676121-00-9 676121-01-0

676121-03-2 676121-04-3 676121-05-4 676121-06-5

676123-31-2 845640-62-2 845640-63-3

(effective color tuning in organic light-emitting diodes based on aluminum tris(5-aryl-8-hydroxyquinoline) complexes)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 11 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1152889 HCAPLUS

DOCUMENT NUMBER: 142:268797

TITLE: Highly efficient deep-blue organic light-emitting diodes with doped transport layers

AUTHOR(S): Gebeyehu, D.; Walzer, K.; He, G.; Pfeiffer, M.; Leo, K.; Brandt, J.; Gerhard, A.; Stoessel, P.; Vestweber, H.

CORPORATE SOURCE: Institut fuer Angewandte Photophysik,

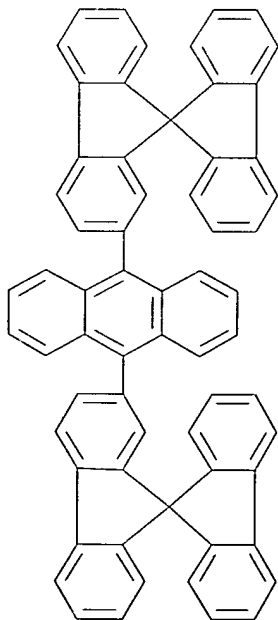
Technische Universitaet Dresden, Dresden,
D-01062, Germany
SOURCE: Synthetic Metals (2005), 148(2), 205-211
CODEN: SYMEDZ; ISSN: 0379-6779
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The authors demonstrate highly efficient, vapor-deposited blue organic light-emitting diodes (OLEDs) operating at low voltage. For reaching deep-blue color, the authors used 2 new fluorophores, 9,10-bis(9,9'-spirobi[9H-fluorene]-2-yl)anthracene (Spiro-Anthracene) from Covion, and 4,4'-bis-(N,N-diphenylamino)-tetraphenyl (4P-TPD) from Syntec-Sensient, sandwiched in between p- and n-type, doped wide band-gap transport layers and appropriate blocking layers. These p-i-n OLED devices show high luminance and efficiency at low operating voltages. Both dyes emit deep-blue light at color coordinates of $x = 0.15$ and $y = 0.09$ (4P-TPD) and $x = 0.15$ and $y = 0.18$ (Spiro-Anthracene). Optimized devices containing Spiro-Anthracene reach a luminance of 100 and 1000 cd/m² already at a voltage of 2.9 and 3.4 V, resp. At the same time, a deep-blue color with CIE color coordinates of $x = 0.14$ and $y = 0.14$ as well as good current efficiencies (3.9 cd/A at 100 cd/m²) and quantum efficiencies (3.7% at 100 cd/m²) are reached, which shows that the concept of doped transport layers and appropriate fluorescent emitters can be applied successfully to the preparation of blue OLEDs.

IT 723285-21-0
(fluorophore; in highly efficient p-i-n deep-blue organic LEDs with doped transport layers)

RN 723285-21-0 HCAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2''-(9,10-anthracenediyl)bis- (9CI)
(CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 723285-21-0

(fluorophore; in highly efficient p-i-n deep-blue organic LEDs with doped transport layers)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 12 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1049213 HCAPLUS

DOCUMENT NUMBER: 142:186063

TITLE: Efficient and stable blue light-emitting diodes based on an anthracene derivative doped poly(N-vinylcarbazole)

AUTHOR(S): Niu, Yu-Hua; Chen, Baoquan; Kim, Tae-Dong; Liu, Michelle S.; Jen, Alex K.-Y.

CORPORATE SOURCE: Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195-2120, USA

SOURCE: Applied Physics Letters (2004), 85(22), 5433-5435

CODEN: APPLAB; ISSN: 0003-6951

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

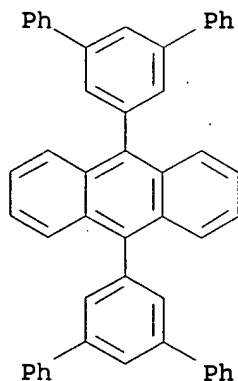
AB Single-layer blue light-emitting diodes (LEDs) are fabricated by spin coating a blend of 9,10-bis(3',5'-diaryl)phenyl anthracene in poly(N-vinylcarbazole) (PVK) or in the mixture of PVK and an electron-transporting mol., 2-tert-butylphenyl-5-biphenyl-1,3,4-oxadiazole. The Commission Internationale de l'Eclairage coordinates of the resulting LEDs are very close to that of the blue standard from the National Television Stds. Committee. These devices also show excellent color stability when operated at a voltage span from 6 to 22 V. High external quantum efficiency (>1.5%) and brightness (>3000 cd/m²) can be obtained in these devices.

IT 247575-24-2

(efficient and stable blue light-emitting diodes based on an anthracene derivative doped poly(N-vinylcarbazole))

RN 247575-24-2 HCAPLUS

CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 247575-24-2

(efficient and stable blue light-emitting diodes based on an anthracene derivative doped poly(N-vinylcarbazole))

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 13 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1035604 HCAPLUS

DOCUMENT NUMBER: 142:29757

TITLE: Dibenzospiro compounds, their organic solutions for manufacture of luminescent films, and blue-emitting organic electroluminescent devices using them

INVENTOR(S): Inoue, Tetsuya; Ikeda, Shuji; Hosokawa, Chishio

PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 49 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004339136	A2	20041202	JP 2003-136838	2003 0515
WO 2004110968	A1	20041223	WO 2004-JP6331	2004 0430

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: JP 2003-136838 A 2003
0515

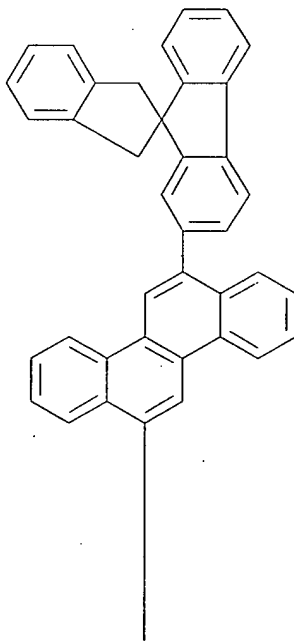
OTHER SOURCE(S): MARPAT 142:29757

GI

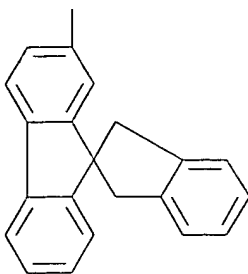
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT

- *
 AB The compds. are (Sp)nXYm [Sp = dibenzospiro groups I; L = single bond, (CR'R'')e, (SiR'R'')e, O, CO, NR'; R', R'' = H, 6-50-membered aromatic group, 5-50-membered aromatic heterocyclylene, C1-50 alkyl; Z = C, Si, Ge; Q = groups necessary for forming cyclic structure; R = 6-50-membered aromatic group, 5-50-membered aromatic heterocyclyl, C1-50 alkyl, etc.; X = 6-50-membered aromatic group, 12-20-membered condensed aromatic group, 5-50-membered aromatic heterocyclylene other than (poly)anthracenediyl; Y = (vinyl linkage-containing) 6-50-membered aromatic group; a, b = 0-4; e = 1-10; m = 0-2; n = 1-4]. The compds. show good heat resistance and organic solvent solubility. Thus, di(spiroindanefluorenyl)benzene II was manufactured and used for a blue-emitting organic electroluminescent device.
- IT 799560-31-9P
 (manufacture of dibenzospiro compds. showing good heat resistance and organic solvent solubility as **emitter** layers for **blue-emitting organic electroluminescent devices**)
- RN 799560-31-9 HCAPLUS
 CN Spiro[9H-fluorene-9,2'-[2H]indene], 2,2''-(6,12-chrysenediyl)bis[1',3'-dihydro- (9CI) (CA INDEX NAME)]

PAGE 1-A



PAGE 2-A



IC ICM C07C013-72
ICS C09K011-06; H05B033-14
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 25
IT 799560-00-2P 799560-15-9P 799560-18-2P 799560-29-5P
799560-31-9P 799560-33-1P
(manufacture of dibenzospiro compds. showing good heat resistance and organic solvent solubility as **emitter** layers for **blue-emitting** organic electroluminescent devices)

L36 ANSWER 14 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:974043 HCAPLUS

DOCUMENT NUMBER: 142:122674

TITLE: Highly efficient yellow and white organic electroluminescent devices doped with 2,8-di(t-butyl)-5,11-di[4-(t-butyl)phenyl]-6,12-diphenylnaphthacene

AUTHOR(S): Liu, Tswen-Hsin; Wu, Yao-Shan; Lee, Meng-Ting; Chen, Hsian-Hung; Liao, Chi-Hung; Chen, Chin H.

CORPORATE SOURCE: Institute of Electro-Optical Engineering, National Chiao Tung University, Hsinchu, Taiwan, 300, Peop. Rep. China

SOURCE: Applied Physics Letters (2004), 85(19), 4304-4306

CODEN: APPLAB; ISSN: 0003-6951

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

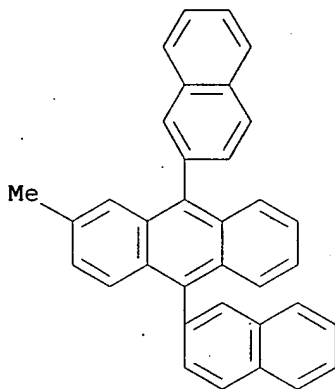
AB We describe the applications of a sterically-hindered yellow dopant, 2,8-di(t-butyl)-5,11-di[4-(t-butyl)phenyl]-6,12-diphenylnaphthacene (TBRb) which, when compared to 5,6,11,12-tetraphenylnaphthacene (Rb) in either tris(8-hydroxyquinolinato)aluminum or 1,4-bis[N-(1-naphthyl)-N'-phenylamino]-4,4' diamine (NPB) as host emitter, shows a 50%-34% increase in luminance efficiency over that of Rb device without significantly affecting its color. In addition, we have incorporated the TBRb doped yellow NPB emitter into the two-element white organic light-emitting diodes based on p-bis(p-N,N-di-phenyl-aminostyryl)benzene doped 2-methyl-9,10-di(2-naphthyl) anthracene sky-blue emitter which improved the luminance efficiency by 44% over that of Rb to 12.8 cd/A and 4.3 lm/W at 20 mA/cm² with CIE_{x,y} = [0.31,0.38].

IT 804560-00-7

(blue emitting; efficient yellow and white organic electroluminescent devices doped with phenylnaphthacene)

RN 804560-00-7 HCAPLUS

CN Anthracene, 2-methyl-9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 804560-00-7

(blue emitting; efficient yellow and white organic electroluminescent devices doped with phenylnaphthacene)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 15 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:940703 HCAPLUS

DOCUMENT NUMBER: 142:122231

TITLE: Diarylamino functionalized pyrene derivatives for use in blue OLEDs and complex formation

AUTHOR(S): Jia, Wen-Li; McCormick, Theresa; Liu, Qin-De; Fukutani, Hiroshi; Motala, Michael; Wang, Rui-Yao; Tao, Ye; Wang, Suning

CORPORATE SOURCE: Department of Chemistry, Queen's University, Kingston, ON, K7L 3N6, Can.

SOURCE: Journal of Materials Chemistry (2004), 14(22), 3344-3350

CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Three new 2,2'-dipyridylamino functionalized pyrene derivs., 1-pyrenyl-2,2'-dipyridylamine (1), 4-(1-pyrenyl)phenyl-2,2'-dipyridylamine (2), and 4-[4'-(1-pyrenyl)biphenyl]-2,2'-dipyridylamine (3) have been synthesized and fully characterized. For comparison of electronic properties, a diphenylamino functionalized mol. 4-[4'-(1-pyrenyl)biphenyl]diphenylamine (4) has also been synthesized. Compds. 1-4 are bright blue emitters in solution and in the solid state with λ_{\max} at

.apprx.420-460 nm and a high emission efficiency in solution All four compds. form amorphous glasses with Tg values of 66 °C, 79 °C, 165 °C, and 98 °C, resp.

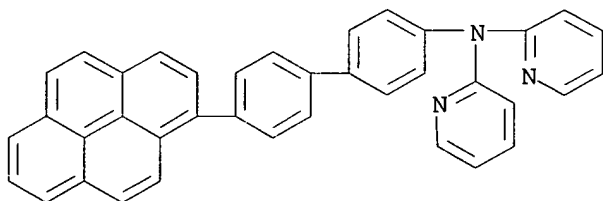
The electronic properties of the four compds. were examined by spectroscopic methods, cyclic voltammetry and Gaussian 98 MO calcns. The utilities of this class of mols. in OLEDs have been demonstrated by EL devices of compds. 3 and 4, which showed that 3 can function as a bright **blue** emitter and an electron transport material in a double-layer device while 4 can function as a bright **blue** emitter and a hole transport mol. in a triple-layer device. The dipyriddyld amino functional group in mols. 1-3 are capable of chelating to metal ions such as Zn(II) as demonstrated by the synthesis and structure of the complex $[2 \cdot (ZnO_2CCF_3)_2]_2$ (5). The binding of Zn(II) ions to the dipyriddyld group causes a reduction of the emission efficiency of the ligand 2.

IT 816421-89-3P

(diarylamino functionalized pyrene derivs. for use in **blue** OLEDs and complex formation)

RN 816421-89-3 HCAPLUS

CN 2-Pyridinamine, N-[4'-(1-pyrenyl) [1,1'-biphenyl]-4-yl]-N-2-pyridinyl- (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 25, 78

ST diarylamino functionalized pyrene deriv synthesis luminescence **blue** electroluminescent device; zinc complex diarylamino functionalized pyrene deriv **blue** OLED luminescence

IT LUMO (molecular orbital)

(HOMO gap; of diarylamino functionalized pyrene derivs. for use in **blue** OLEDs and complex formation)

IT HOMO (molecular orbital)

(LUMO gap; of diarylamino functionalized pyrene derivs. for use in **blue** OLEDs and complex formation)

IT UV and visible spectra

(absorption; of diarylamino functionalized pyrene derivs. for use in **blue** OLEDs and complex formation)

IT Electroluminescent devices

(**blue**-emitting; diarylamino functionalized pyrene derivs. for use in **blue** OLEDs and complex formation)

IT Luminescent substances

(**blue**; diarylamino functionalized pyrene derivs. for use in **blue** OLEDs and complex formation)

IT Electric current-potential relationship

Luminescence, electroluminescence

(diarylamino functionalized pyrene derivs. for use in **blue** OLEDs and complex formation)

IT Luminescence quenching

(in Zn complex; diarylamino functionalized pyrene derivs. for

use in blue OLEDs and complex formation)

IT Crystal structure
Glass transition temperature
HOMO (molecular orbital)
LUMO (molecular orbital)
Luminescence
Molecular structure
Oxidation, electrochemical
Reduction, electrochemical
(of diarylamino functionalized pyrene derivs. for use in blue OLEDs and complex formation)

IT Electric current carriers
(transport; in diarylamino functionalized pyrene derivs. for use in blue OLEDs and complex formation)

IT 816421-89-3P 816421-92-8P
(diarylamino functionalized pyrene derivs. for use in blue OLEDs and complex formation)

IT 816421-86-0P
(diarylamino functionalized pyrene derivs. for use in blue OLEDs and complex formation)

IT 693289-16-6DP, derivs. 693289-16-6P
(diarylamino functionalized pyrene derivs. for use in blue OLEDs and complex formation)

IT 2085-33-8, Aluminum tris(8-hydroxyquinolino)
(electron-transporting layer; diarylamino functionalized pyrene derivs. for use in blue OLEDs also containing)

IT 58328-31-7 372956-40-6
(hole-blocking layer; diarylamino functionalized pyrene derivs. for use in blue OLEDs also containing)

IT 123847-85-8, NPB
(hole-transporting layer; diarylamino functionalized pyrene derivs. for use in blue OLEDs also containing)

IT 1202-34-2, 2,2'-Dipyridylamine 1714-29-0, 1-Bromopyrene
497144-91-9 497144-92-0 668493-36-5
(synthesis of blue-emitting diarylamino functionalized pyrene derivs. using)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 16 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:935421 HCAPLUS

DOCUMENT NUMBER: 141:403270

TITLE: Organic electroluminescent device

INVENTOR(S): Kamino, Hiroshi; Matsusue, Tetsuyuki; Saito, Kaori; Hamada, Yuji

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 33 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004311420	A2	20041104	JP 2004-79216	2004 0318

US 2005074630

A1

20050407

US 2004-809804

2004
0326

PRIORITY APPLN. INFO.:

JP 2003-89415

A

2003
0327

JP 2004-79216

A

2004
0318

OTHER SOURCE(S): MARPAT 141:403270

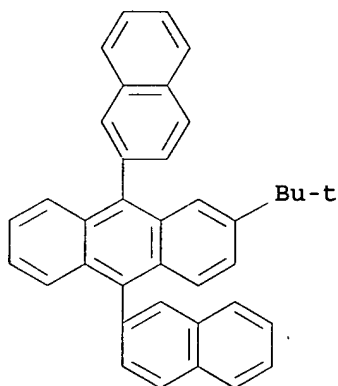
AB The invention relates to an organic electroluminescent device, suited for use in making a white light-emitting device, comprising a hole injection layer formed on an anode, a hole transporting layer, a blue light-emitting layer, an orange light-emitting layer, an electron injection layer, and a cathode, wherein the blue light-emitting layer comprises a blue light-emitting dopant, a codopant that is the same material used in the hole transporting layer, and a host material.

IT 274905-73-6

(host material of blue light-emitting layer; white light-emitting organic electroluminescent device)

RN 274905-73-6 HCAPLUS

CN Anthracene, 2-(1,1-dimethylethyl)-9,10-di-2-naphthalenyl- (9CI)
(CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06; H05B033-12

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74

IT 274905-73-6

(host material of blue light-emitting layer; white light-emitting organic electroluminescent device)

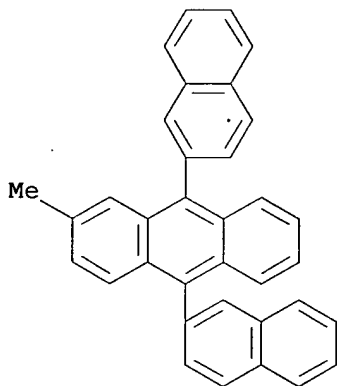
L36 ANSWER 17 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:907960 HCAPLUS

DOCUMENT NUMBER: 142:64828

TITLE: Stable styrylamine-doped blue organic electroluminescent device based on

AUTHOR(S): 2-methyl-9,10-di(2-naphthyl)anthracene
Lee, Meng-Ting; Chen, Hsian-Hung; Liao,
Chi-Hung; Tsai, Chih-Hung; Chen, Chin H.
CORPORATE SOURCE: Department of Applied Chemistry, National
Chiao Tung University, Hsinchu, 300, Taiwan
SOURCE: Applied Physics Letters (2004), 85(15),
3301-3303
CODEN: APPLAB; ISSN: 0003-6951
PUBLISHER: American Institute of Physics
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The authors have developed a highly efficient and stable blue organic
electroluminescent (EL) device based on a blue fluorescent
styrylamine dopant, p-bis(p-N,N-diphenyl-aminostyryl)benzene, in a
morphol. stable high band-gap host material, 2-methyl-9,10-di(2-
naphthyl)anthracene, which achieved an EL efficiency of 9.7 cd/A
and 5.5 lm/W at 20 mA/cm² and 5.7 V, with Commission
Internationale d'Eclairage coordinates of (x = 0.16, y = 0.32).
The blue-doped device achieved a half-decay lifetime (t_{1/2}) of
46,000 h at an initial brightness of 100 cd/m².
IT 804560-00-7
(stable styrylamine-doped blue organic
electroluminescent device based on 2-Me-9,10-di(2-
naphthyl)anthracene)
RN 804560-00-7 HCAPLUS
CN Anthracene, 2-methyl-9,10-di-2-naphthalenyl- (9CI) (CA INDEX
NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
IT 55035-42-2 804560-00-7
(stable styrylamine-doped blue organic
electroluminescent device based on 2-Me-9,10-di(2-
naphthyl)anthracene)
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT
L36 ANSWER 18 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:789456 HCAPLUS
DOCUMENT NUMBER: 141:403175
TITLE: Anthracene derivative for a non-doped
blue-emitting organic electroluminescence

device with both excellent color purity and high efficiency

AUTHOR(S): Tao, Silu; Hong, Ziruo; Peng, Zhaokuai; Ju, Weigang; Zhang, Xiaohong; Wang, Pengfei; Wu, Shikang; Lee, Shuitong

CORPORATE SOURCE: Nano-organic Photoelectronic Laboratory, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing, 100101, Peop. Rep. China

SOURCE: Chemical Physics Letters (2004), 397(1-3), 1-4
CODEN: CHPLBC; ISSN: 0009-2614

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

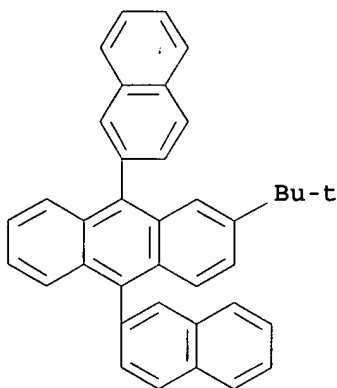
LANGUAGE: English

AB A new anthracene derivative 2-tert-butyl-9,10-bis-(β -naphthyl)-anthracene (TBADN) was synthesized and used as a blue light-emitting material in a non-doped organic light-emitting diode (OLED). The OLED showed efficient blue emission with excellent Commission International de L'Eclairage (CIE) coordinates ($x = 0.14$, $y = 0.10$) and a maximum current efficiency of 2.6 cd/A. Compared with the prototypical blue OLEDs based on 9,10-bis-(β -naphthyl)-anthracene, the present device showed much improved color purity and efficiency. The improved performance is due to the reduction of mol. aggregation and the change of mol. electronic state by introducing of the bulky tert-Bu group on anthracene.

IT 274905-73-6
(emitting layer; anthracene derivative for non-doped blue-emitting organic electroluminescent device with both excellent color purity and high efficiency)

RN 274905-73-6 HCAPLUS

CN Anthracene, 2-(1,1-dimethylethyl)-9,10-di-2-naphthalenyl- (9CI)
(CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 22, 76

IT 274905-73-6
(emitting layer; anthracene derivative for non-doped blue-emitting organic electroluminescent device with both excellent color purity and high efficiency)

IT 122648-99-1
(reference; anthracene derivative for non-doped blue-

emitting organic electroluminescent device with
both excellent color purity and high efficiency)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 19 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:780190 HCAPLUS

DOCUMENT NUMBER: 141:285561

TITLE: White light-emitting device having a blue
light-emitting layer doped with an
electron-transporting or a hole-transporting
material

INVENTOR(S): Hatwar, Tukaram K.; Ricks, Michele L.;
Winters, Dustin; Spindler, Jeffrey P.

PATENT ASSIGNEE(S): Eastman Kodak Company, USA

SOURCE: U.S. Pat. Appl. Publ., 26 pp., Cont.-in-part
of U.S. Ser. No. 391,727, abandoned.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

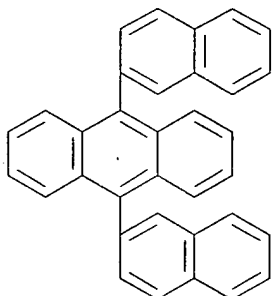
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004185300	A1	20040923	US 2003-606446	2003 0626
EP 1492167	A2	20041229	EP 2004-76759	2004 0614
EP 1492167	A3	20050126		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
JP 2005019413	A2	20050120	JP 2004-190012	2004 0628
PRIORITY APPLN. INFO.:			US 2003-391727	B2 2003 0319
			US 2003-606446	A 2003 0626

AB An organic light-emitting diode (OLED) device which produces substantially white light includes an anode; a hole-transporting layer disposed over the anode; and a blue light-emitting layer having a host doped with a blue light-emitting compound disposed directly on the hole-transporting layer and the blue light-emitting layer being doped with an electron-transporting or a hole-transporting material or both selected to improve efficiency and operational stability. The device also includes an electron-transporting layer disposed over the blue light-emitting layer; a cathode disposed over the electron-transporting layer; and the hole-transporting layer or electron-transporting layer, or both the hole-transporting layer and electron-transporting layer,

being selectively doped with a compound which emits light in the yellow region of the spectrum which corresponds to an entire layer or a partial portion of a layer in contact with the blue light-emitting layer.

IT 122648-99-1
(white light-emitting device having
blue light-emitting layer doped
with electron-transporting or hole-transporting material)
RN 122648-99-1 HCAPLUS
CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



IC ICM H05B033-14
INCL 428690000; 428917000; 313504000; 313506000; 313112000; 257088000;
257098000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 22
IT 122648-99-1 274905-73-6, 2,tert-Butyl-9,10-di-(2-
naphthyl)anthracene
(white light-emitting device having
blue light-emitting layer doped
with electron-transporting or hole-transporting material)

L36 ANSWER 20 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:706547 HCAPLUS

DOCUMENT NUMBER: 141:372182

TITLE: Tuning of emission color for blue dendrimer
blend light-emitting diodes

AUTHOR(S): Markham, Jonathan P. J.; Namdas, Ebinazar B.;
Anthopoulos, Thomas D.; Samuel, Ifor D. W.;
Richards, Gary J.; Burn, Paul L.

CORPORATE SOURCE: Organic Semiconductors Centre, School of
Physics and Astronomy, University of St.
Andrews, Fife, KY16 9SS, UK

SOURCE: Applied Physics Letters (2004), 85(9),
1463-1465

CODEN: APPLAB; ISSN: 0003-6951

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We demonstrate efficient tunable blue electroluminescence from
blends of two solution-processible light-emitting dendrimers. These
materials can be blended to form optical quality thin films with
no phase-separation effects, irrespectively of the blend ratio. External
quantum efficiencies of 1% have been measured for the blend
systems and the emission color can be tuned from deep blue

(emission peak 401 nm) to blue green (477 nm) by blend composition A power efficiency of 1.5 lm/W (at 200 Cd/m² and 5.4 V) is measured for a single layer, first-generation blue-green fluorene-thiophene dendrimer. These results show that by choice of a dendrimer structure with common branching units and surface groups, dissimilar cores can be blended with excellent miscibility. This provides a simple way of tuning the color of organic light-emitting diodes.

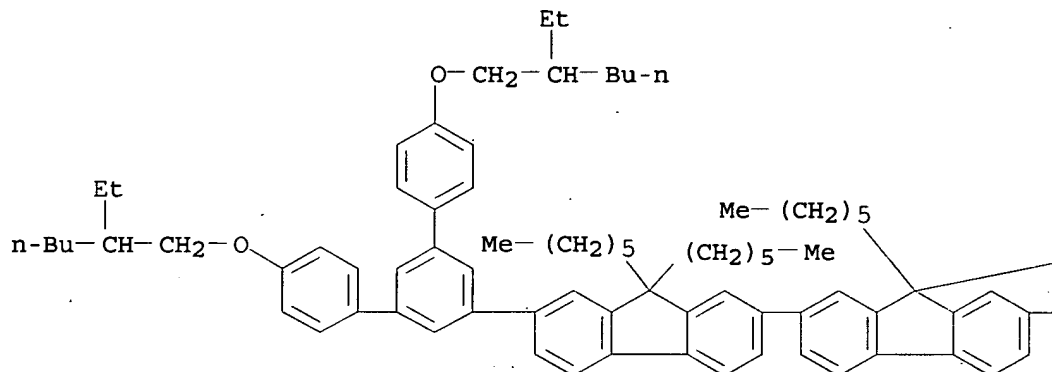
IT 452914-32-8

(tuning of emission color for blue dendrimer blend
light-emitting diodes)

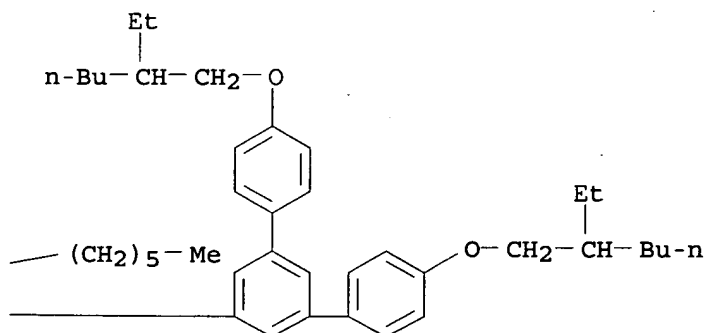
RN 452914-32-8 HCAPLUS

CN 2,2'-Bi-9H-fluorene, 7,7'-bis[4,4''-bis[(2-ethylhexyl)oxy][1,1':3',1''-terphenyl]-5'-yl]-9,9,9',9'-tetrahexyl-
(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 36, 38, 76

IT 452914-32-8 452914-35-1

(tuning of emission color for blue dendrimer blend
light-emitting diodes)

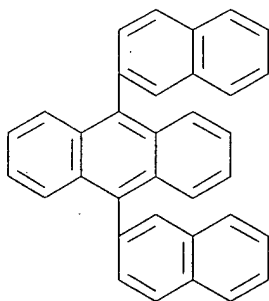
REFERENCE COUNT:

20

THERE ARE 20 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE

IN THE RE FORMAT

L36 ANSWER 21 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:688746 HCAPLUS
DOCUMENT NUMBER: 142:438243
TITLE: Doped RGB organic electroluminescent devices
based on a bipolar host material
AUTHOR(S): Wen, Shih-Wen; Yen, Chia-Kuo; Liu, Tswen-Hsin;
Chen, Chin H.
CORPORATE SOURCE: OLED Research Laboratory of Microelectronics &
Information Systems Research Center,
Department of Applied Chemistry, National
Chiao Tung University Hsinchu, Taichung, 300,
Peop. Rep. China
SOURCE: Proceedings of the Chinese Optoelectronics
Symposium, 6th, Hong Kong, China, Sept. 12-14,
2003 (2003), 263-265. Editor(s): Kwok,
Hoi-Sing; Chan, Kam Tai. Institute of
Electrical and Electronics Engineers: New
York, N. Y.
CODEN: 69FUBL; ISBN: 0-7803-7887-3
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Development of RGB doped emitters based on the bipolar host of
wide bandgap material, 9,10-bis(2-naphthyl)anthracene (ADN) is
described. While the blue (B) and green (G) fluorescent dopants
of TBP and Coumarin 545T achieved EL efficiencies of 5.1 and 11.2
cd/A, resp. in ADN, the red (R) fluorescent DCJTB dopant needed to
be doped in a co-hosted mixture of ADN: Alq3 (60:40) to achieve a
high efficiency of 4.8 cd/A with a near saturated CIE_{x,y} = 0.64, 0.35
at 2% doping. Luminance efficiencies of all 3 RGB doped emitters
in the bipolar ADN based host are not effected by increased drive
c.d., solving the current-induced fluorescence quenching problem
often encountered in organic EL devices.
IT 122648-99-1, 9,10-Bis(2-naphthyl)anthracene
(doped red-green-blue organic LEDs based on
bipolar host material containing)
RN 122648-99-1 HCAPLUS
CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 22, 76
IT 80663-92-9, 2,5,8,11-Tetra(tert-butyl)perylene 122648-99-1
, 9,10-Bis(2-naphthyl)anthracene 123847-85-8, NPB
(photoreceptor) 155306-71-1, Coumarin 545T 200052-70-6, DCJTB

(doped red-green-blue organic LEDs based on
bipolar host material containing)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 22 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:568210 HCAPLUS

DOCUMENT NUMBER: 141:131023

TITLE: Organic electroluminescent devices employing
blue-emitting dopants based on amine
derivatives of pyrene

INVENTOR(S): Seo, Jeong Dae; Lee, Kyung Hoon; Kim, Hee
Jung; Park, Chun Gun; Oh, Hyoung Yun

PATENT ASSIGNEE(S): Lg Electronics Inc., S. Korea

SOURCE: Eur. Pat. Appl., 43 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

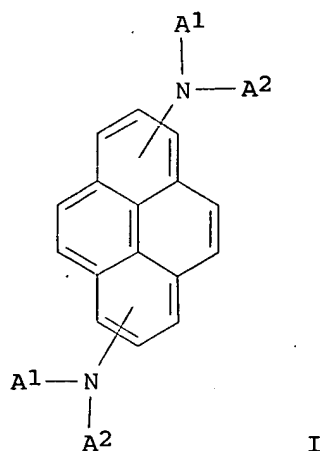
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1437395	A2	20040714	EP 2003-29661	2003 1223
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2004137270	A1	20040715	US 2003-743778	2003 1224
JP 2004204238	A2	20040722	JP 2003-428297	2003 1224
PRIORITY APPLN. INFO.:			KR 2002-83279	A 2002 1224
			KR 2003-20465	A 2003 0401

OTHER SOURCE(S): MARPAT 141:131023
GI



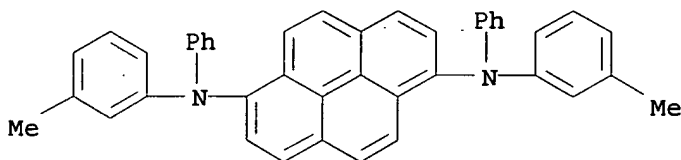
AB Organic electroluminescent devices are described which comprise a substrate; a first and second electrodes formed on the substrate; an emitting layer formed between the first electrode and the second electrode, the emitting layer having a plurality of materials one of which being a blue-emitting dopant with general formula (I), where at least one of A1 and A2 is selected from a substituted or non-substituted aromatic group, a heterocyclic group, an aliphatic group and hydrogen. The materials forming the emitting layer together with the material of I may have a chemical formula B1-X-B2 where X is selected from a group consisting of naphthalene, anthracene, phenanthrene, pyrene, perylene, and quinoline and at least 1 of the B1 and B2 is selected from a group consisting of aryl, alkylaryl, alkoxyaryl, arylaminoaryl and alkylaminoaryl.

IT 76656-51-4

(blue-emitting dopant; organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)

RN 76656-51-4 HCAPLUS

CN 1,6-Pyrenediamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI)
(CA INDEX NAME)



IC ICM C09K011-06

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 25, 76

ST org electroluminescent device blue dopant pyrene amine deriv OLED

IT Dopants

(blue-emitting; organic electroluminescent devices employing blue-emitting dopants based on amine

derivs. of pyrene)
 IT Luminescent substances
 (electroluminescent, blue-emitting; organic
 electroluminescent devices employing blue-emitting
 dopants based on amine derivs. of pyrene)
 IT Electroluminescent devices
 (organic electroluminescent devices employing blue
 -emitting dopants based on amine derivs. of pyrene)
 IT 76656-51-4 143141-30-4 163969-53-7
 663954-33-4 668019-96-3 722498-76-2
 722498-77-3 722498-78-4 722498-79-5
 722498-80-8 722498-81-9 722498-82-0
 722498-83-1 722498-84-2 722498-85-3
 722498-86-4 722498-87-5 722498-88-6
 722498-89-7 722498-90-0 722498-91-1
 722498-92-2 722498-93-3 722498-94-4
 722498-95-5 722498-97-7 722498-98-8
 722498-99-9 722499-00-5 722499-01-6
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 722499-47-0 722499-48-1 722499-49-2
 722499-50-5 722499-51-6 722499-52-7
 722499-53-8 722499-54-9
 (blue-emitting dopant; organic
 electroluminescent devices employing blue-
 emitting dopants based on amine derivs. of pyrene)
 IT 722498-96-6
 (blue-emitting dopant; organic
 electroluminescent devices employing blue-
 emitting dopants based on amine derivs. of pyrene)
 IT 722498-52-4P 722498-53-5P 722498-55-7P
 (blue-emitting dopant; organic
 electroluminescent devices employing blue-
 emitting dopants based on amine derivs. of pyrene)
 IT 188-71-6, Pentabenz[a,de,kl,o,rst]pentaphene 26979-27-1
 43069-36-9 55009-75-1 331749-28-1
 400606-81-7 626236-19-9 653599-45-2
 653599-46-3 722498-56-8 722498-57-9
 722498-58-0 722498-59-1 722498-60-4
 722498-61-5 722498-62-6 722498-64-8
 722498-65-9 722498-66-0 722498-67-1
 722498-68-2 722498-69-3 722498-70-6
 722498-71-7 722498-72-8 722498-73-9
 722498-74-0 722498-75-1
 (light-emitting host; organic
 electroluminescent devices employing blue-
 emitting dopants based on amine derivs. of pyrene)

- IT 722498-63-7
(light-emitting host; organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)
- IT 2085-33-8, Aluminum tris(8-hydroxyquinolinato) 123847-85-8, NPB
(organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)
- IT 75-77-4, Chlorotrimethylsilane, reactions 106-37-6,
1,4-Dibromobenzene 109-04-6, 2-Bromopyridine 122-39-4,
Diphenylamine, reactions 129-00-0, Pyrene, reactions 769-92-6,
4-tert-Butylphenylamine 6631-37-4
(organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)
- IT 6999-03-7P, (4-Bromophenyl)trimethylsilane 27973-29-1P,
1,6-Dibromopyrene 722498-51-3P 722498-54-6P
(organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)
- IT 38303-35-4P, 1,8-Dibromopyrene
(organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)
- IT 76656-53-6P
(organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)

L36 ANSWER 23 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:383153 HCAPLUS

DOCUMENT NUMBER: 141:303400

TITLE: Cyanocarbazole derivatives for high-performance electroluminescent devices

AUTHOR(S): Thomas, K. R. Justin; Velusamy, Marappan; Lin, Jiann T.; Tao, Yu-Tai; Chuen, Chang-Hao

CORPORATE SOURCE: Institute of Chemistry, Academia Sinica, Taipei, 115, Taiwan

SOURCE: Advanced Functional Materials (2004), 14(4), 387-392

CODEN: AFMDC6; ISSN: 1616-301X

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

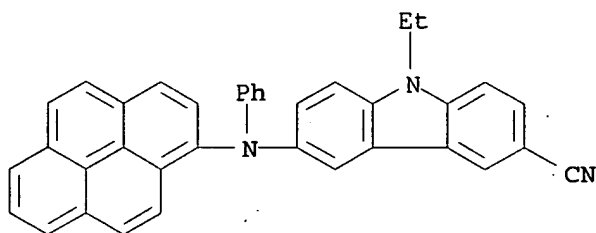
LANGUAGE: English

AB 3-Cyano-9-(diarylamino)carbazoles have been synthesized. These new compds. emit in the blue to green region. Double-layer electroluminescent devices using these compds. as the hole-transport/emitting materials are highly efficient. Two of the compds. can be fabricated into single-layer devices with good performance. Green- and blue-emitting devices with good performance were also fabricated using one of the compds. as the hole-injection layer.

IT 764654-66-2P
(target cyanocarbazole; cyanocarbazole derivs. for high-performance electroluminescent devices)

RN 764654-66-2 HCAPLUS

CN 9H-Carbazole-3-carbonitrile, 9-ethyl-6-(phenyl-1-pyrenylamino)-(9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 764654-62-8P 764654-63-9P 764654-64-0P 764654-66-2P

(target cyanocarbazole; cyanocarbazole derivs. for high-performance electroluminescent devices)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 24 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:353005 HCAPLUS

DOCUMENT NUMBER: 140:382870

TITLE: Electroluminescent devices employing blue light-emitting dopants based on 2-(3-aminophenyl)-benzofuran or 2-(4-aminophenyl)-benzofuran compounds

INVENTOR(S): Conley, Scott R.

PATENT ASSIGNEE(S): Eastman Kodak Company, USA

SOURCE: U.S. Pat. Appl. Publ., 17 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2004081853	A1	20040429	US 2002-280373	2002 1025
US 6828044	B2	20041207		
WO 2004040669	A1	20040513	WO 2003-US32213	2003 1009

W: CN, JP, KR

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR

PRIORITY APPLN. INFO.: US 2002-280373 A

2002
1025

OTHER SOURCE(S): MARPAT 140:382870

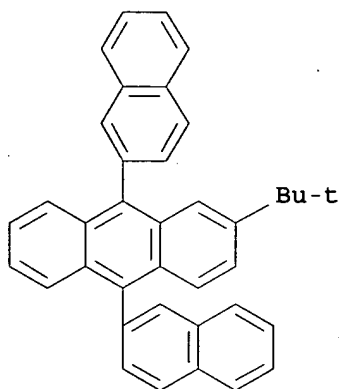
AB Organic light-emitting devices are described which comprise a light-emitting layer comprising a host and a blue-light-emitting dopant, where the dopant comprises a 2-(3-aminophenyl)-benzofuran or 2-(4-aminophenyl)-benzofuran compound Imaging devices incorporating the organic light-emitting devices are also discussed.

IT 274905-73-6, 2-tert-Butyl-9,10-di(2-naphthyl)anthracene

(doped light-emitting layer;
electroluminescent devices employing blue
light-emitting dopants based on
2-(3-aminophenyl)-benzofuran or 2-(4-aminophenyl)-benzofuran
comps.)

RN 274905-73-6 HCAPLUS

CN Anthracene, 2-(1,1-dimethylethyl)-9,10-di-2-naphthalenyl- (9CI)
(CA INDEX NAME)



IC ICM H05B033-14

INCL 428690000; 428917000; 313504000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

Section cross-reference(s): 22, 76

IT 274905-73-6, 2-tert-Butyl-9,10-di(2-naphthyl)anthracene

(doped light-emitting layer;
electroluminescent devices employing blue
light-emitting dopants based on
2-(3-aminophenyl)-benzofuran or 2-(4-aminophenyl)-benzofuran
comps.)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 25 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:349791 HCAPLUS

DOCUMENT NUMBER: 141:71948

TITLE: Synthesis and Properties of Random and
Alternating Fluorene/Carbazole Copolymers for
Use in Blue Light-Emitting Devices

AUTHOR(S): Li, Yuning; Ding, Jianfu; Day, Michael; Tao,
Ye; Lu, Jianping; D'iorio, Marie

CORPORATE SOURCE: Institute for Chemical Process and
Environmental Technology (ICPET) and Institute
for Microstructural Sciences (IMS), National
Research Council of Canada (NRC), Ottawa, ON,
K1A 0R6, Can.

SOURCE: Chemistry of Materials (2004), 16(11),
2165-2173

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Random and alternating fluorene/carbazole (F/Cz) copolymers with various carbazole contents (20-50 mol %) have been designed and synthesized for use as the hole-transporting as well as light-emitting layer in blue light-emitting diodes (LEDs). DSC anal. has indicated the complete suppression of the crystallizability of these polymers by the introduction of 3,6-carbazole linkages into the polymer backbone, which also results in changes in their optical properties. The absorption maximum has been blue-shifted with an increase in the carbazole content due to the interruption in the main chain conjugation. Meanwhile, the photoluminescent properties have been influenced by the sequence distribution of the fluorene segments as well as the carbazole content. The emission maxima and vibronic features of the alternating copolymers have changed with carbazole content, reflecting the differences in the electronic structures of the repeat units. However, in the case of the random copolymers, the emission spectra remain almost unchanged and are similar to poly(9,9-dioctylfluorene) (PF), despite the fact that the carbazole content increases up to 33 mol %. This feature has been attributed to the existence of longer fluorene segments in the random copolymers, which would be expected to have lower energy gaps, and thus effectively collect excitons from other parts of the polymer backbone. Consequently, the light emitted from these energy traps is similar to that from PF. Electrochem. studies indicate that the introduction of carbazole units effectively raises the HOMO energy levels, thereby facilitating hole injection. Controlling the carbazole content between 20 and 33 mol % results in copolymers with stable and reversible p-doping and n-doping processes. A test for a LED device from P(F3-alt-Cz) indicates that the F/Cz copolymers could be a good candidate for blue light-emitting and hole-transporting materials.

IT 685114-78-7P

(synthesis and properties of random and alternating copolymers containing fluorene and carbazole moieties for use in blue light-emitting devices)

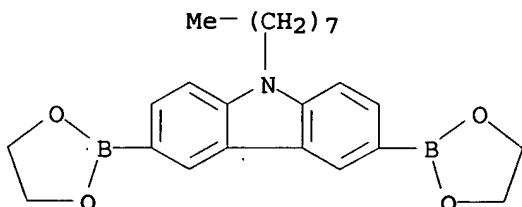
RN 685114-78-7 HCAPLUS

CN 9H-Carbazole, 3,6-di-1,3,2-dioxaborolan-2-yl-9-octyl-, polymer with 7,7''-dibromo-9,9,9',9',9'',9'''-hexaoctyl-2,2':7',2''-ter-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 685114-69-6

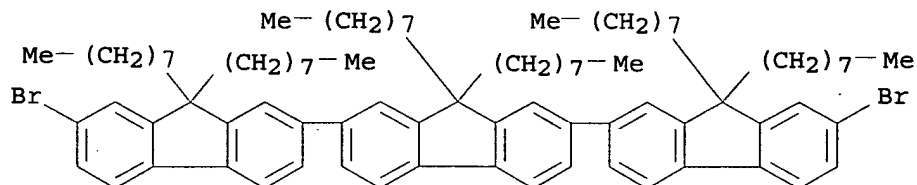
CMF C24 H31 B2 N O4



CM 2

CRN 646474-54-6

CMF C87 H120 Br2



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 73, 76

IT 685114-78-7P 685114-80-1P

(synthesis and properties of random and alternating copolymers containing fluorene and carbazole moieties for use in blue light-emitting devices)

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 26 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:334942 HCAPLUS

DOCUMENT NUMBER: 141:322205

TITLE: Blue organic electroluminescent devices with enhanced efficiency on a novel structure basis
 AUTHOR(S): Zhang, Ji-mei; Jiang, Xue-yin; Zhang, Zhi-lin; Zhu, Wen-qing; Wu, You-zhi; Xu, Shao-hong; Jiang, Biao; Fu, Ke-hong

CORPORATE SOURCE: School of Materials Science & Engineering, Shanghai University, Shanghai, 201800, Peop. Rep. China

SOURCE: Faguang Xuebao (2004), 25(1), 34-38
 CODEN: FAXUEW; ISSN: 1000-7032

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Blue organic electroluminescent devices with a novel structure by using a new hole transporting material have been fabricated. The structure is ITO/CuPc/J0503/JBEM: perylene/TPBi/Alq3/LiF/Al, in which a hole-blocking layer was inserted between electron-transporting layer and emitting layer. For comparison, devices with a conventional structure have also been made, and the structure is ITO/CuPc/J0503/JBEM: perylene/Alq3/LiF/Al. Here CuPc (Copper phthalocyanine) and LiF are hole and electron injection layers, resp., J0503 hole-transporting layer (HTL), JBEM (9,10-bis(3',5'-diaryl) Ph anthracene) emitting-layer (EML), TPBi (1,3,5-tri(phenyl-2-benzimidazole)-benzene) hole-blocking layer (HBL), and Alq3 (tris(8-quinolinolato) aluminum complex) electron-transporting layer (ETL). Devices with different EML thickness of each structure have also been prepared in order to investigate the effect of EML thickness on the performance. The results indicate that the devices with the novel structure show improved efficiency and luminance as compared to the conventional ones. However, the improvements depend on the thickness of EML. Small differences are found in both structures with the EML thickness larger than the diffusion length of excitons because the blocking-effect from HBL has little effect on the increasing d. of excitons. While the novel devices with thickness approx. to the

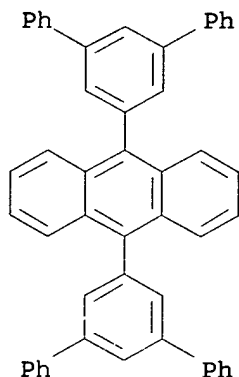
diffusion length of excitons show much higher efficiency and luminance than that of the conventional ones having the same EML thickness because of the good confinement to both charge carriers and excitons. When the thickness of EML is too small, probably, strong interface effect leads to break the performances of the novel devices.

IT 247575-24-2

(blue organic electroluminescent devices with enhanced efficiency on novel structure basis)

RN 247575-24-2 HCAPLUS

CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22

IT 147-14-8, Copper phthalocyanine 198-55-0, Perylene 2085-33-8, Alq3 7429-90-5, Aluminum, properties 7789-24-4, Lithium fluoride, properties 50926-11-9, ITO 192198-85-9, TPBi 247575-24-2

(blue organic electroluminescent devices with enhanced efficiency on novel structure basis)

L36 ANSWER 27 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:252040 HCAPLUS

DOCUMENT NUMBER: 140:311689

TITLE: White organic light-emitting devices with improved performance

INVENTOR(S): Hatwar, Tukaram K.

PATENT ASSIGNEE(S): Eastman Kodak Company, USA

SOURCE: U.S. Pat. Appl. Publ., 34 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2004058193	A1	20040325	US 2002-244314	2002 0916

JP 2004134396

A2

20040430

JP 2003-323021

2003

0916

PRIORITY APPLN. INFO.:

US 2002-244314

A

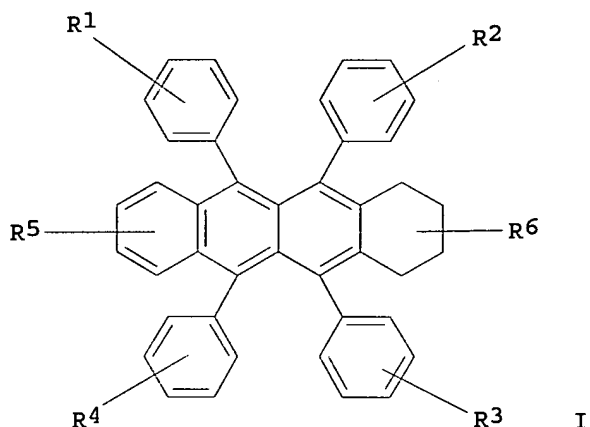
2002

0916

OTHER SOURCE(S):

MARPAT 140:311689

GI



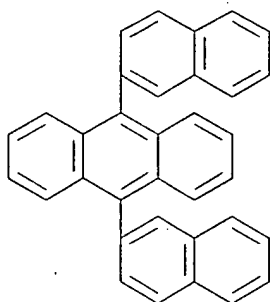
AB An white-light organic light-emitting diode (OLED) device is described comprising, in order, an anode; a hole-transporting layer; a doped blue light-emitting layer; an electron-transporting layer a cathode; and the hole-transporting layer and/or electron-transporting layer, selectively doped with the compound of general formula I which emits light in the yellow region of the spectrum which corresponds to an entire layer or a partial portion of a layer in contact with the blue light-emitting layer; wherein R1-R6 represent one or more substituents on each ring where each substituent is individually selected from (1)H, or alkyl C1-C24; (2) (substituted)aryl of C5-C20; (3)C4-C24 necessary to complete a fused aromatic ring of naphthyl, anthracenyl, phenanthryl, pyrenyl, or perylenyl; (4)heteroaryl or substituted heteroaryl of C5-C24 such as thiazolyl, furyl, thienyl, pyridyl, quinolinyl or other heterocyclic systems, which may be bonded via a single bond, or may complete a fused heteroarom. ring system; (5)alkoxylamino, alkylamino, or arylamino of C1-C24; or (6) fluorine, chlorine, bromine or cyano, except R5 and R6 do not form a fused ring, and at least one of the substituents R1, R2, R3, and R4 are substituted with a group other than H.

IT 122648-99-1

(blue emitting host material; white organic light-emitting devices using super rubrenes organic yellow emitting material with improved performance)

RN 122648-99-1 HCAPLUS

CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



IC ICM H05B033-14
 INCL 428690000; 428917000; 428332000; 313504000; 313506000; 313112000;
 257098000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 Section cross-reference(s): 76
 IT 122648-99-1 274905-73-6
 (blue emitting host material; white organic
 light-emitting devices using super rubrenes
 organic yellow emitting material with improved
 performance)

L36 ANSWER 28 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:203783 HCAPLUS
 DOCUMENT NUMBER: 140:261171
 TITLE: Condensed polycyclic compounds and organic
 light-emitting device using the same
 INVENTOR(S): Suzuki, Koichi; Kawai, Tatsundo; Senoo,
 Akihiro; Yamada, Naoki; Saito, Akihito;
 Okajima, Maki
 PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan
 SOURCE: PCT Int. Appl., 77 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004020371	A1	20040311	WO 2003-JP10783	2003 0826
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2004107326	A2	20040408	JP 2003-291191	

PRIORITY APPLN. INFO.:

JP 2002-246600

A

2003
08112002
0827

JP 2003-291191

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2003
0811OTHER SOURCE(S):
GI

MARPAT 140:261171

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
*

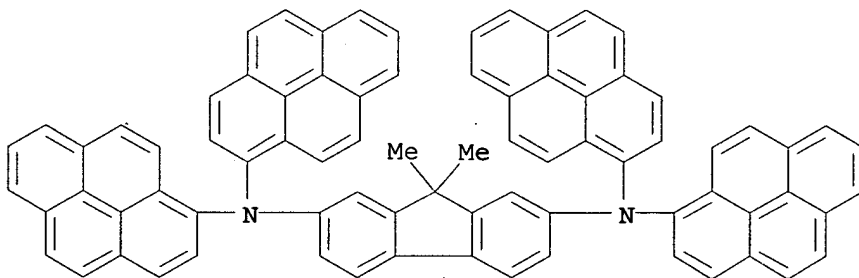
AB The invention is directed to the preparation of condensed polycyclic compds. I as (component) of organic light-emitting devices that are extremely efficient in a light output with high luminance and is extremely durable [R1 = H, halo, cyano, substituted amino or (un)substituted alkyl, aralkyl, aryl; Ar1 to Ar5 = independently (un)substituted condensed polycyclic aromatic group or condensed polycyclic heterocyclic group]. For example, Suzuki cross-coupling of hexabromobenzene with 9,9-dimethylfluorene-2-boronic acid gave 42% II and 17% all substituted 9,9-dimethylfluorenyl II. A device fabricated using II in the active layer exhibited blue emission with a luminance of 2800 cd/m2 at a c.d. of 10 mA/cm2.

IT 669016-10-8

(preparation of condensed polycyclic compds. and their use to the manufacture of organic light-emitting devices)

RN 669016-10-8 HCAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N,N',N'-tetra-1-pyrenyl-(9CI) (CA INDEX NAME)



IC ICM C07C013-567

ICS C07C013-66; C07C015-24; C07C015-28; C07C015-30; C07C015-38;
C07C025-22; C07C211-58; C07C255-52; C07D401-14; C07D471-04;
C09K011-06; H05B033-14; H05B033-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 25, 76

IT 94928-86-6 143886-09-3 203459-05-6 228871-85-0 239475-91-3
522653-17-4 669016-10-8 669016-14-2

669016-15-3 669016-18-6 669016-19-7 669016-20-0
669016-22-2 669016-23-3 669016-26-6 669016-28-8
669016-29-9 669016-30-2 669077-94-5 669773-71-1
669773-72-2

(preparation of condensed polycyclic compds. and their use to the
manufacture of organic **light-emitting** devices)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 29 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:198497 HCAPLUS

DOCUMENT NUMBER: 140:225545

TITLE: Phenylanthracenes for **blue-emitting**
organic electroluminescent devices having high
luminescent intensity and efficiency

INVENTOR(S): Kawamura, Hisayuki

PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004075580	A2	20040311	JP 2002-235538	2002 0813

PRIORITY APPLN. INFO.: JP 2002-235538

2002
0813

OTHER SOURCE(S): MARPAT 140:225545

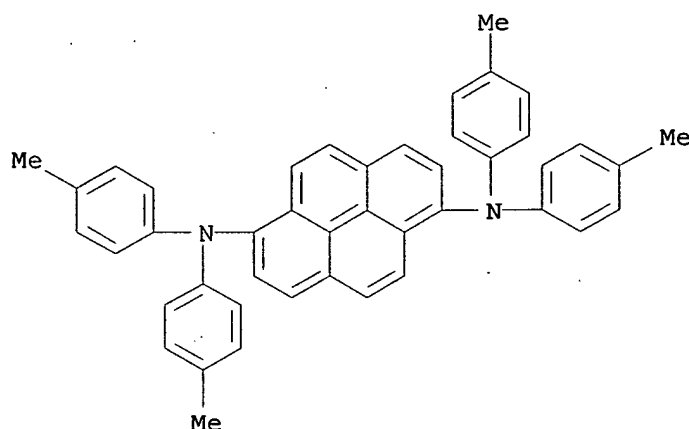
AB The phenylanthracenes are A1LA2 (I) (A1, A2 = phenylanthryl,
diphenylanthryl; L = C_≥8 polycyclic alicyclic group; A1 and
A2 link via different atoms of L). Organic electroluminescent
devices have emitter or hole-transporting layers containing I.

IT 663954-33-4

(dopants; polycyclic alicyclic compds. bearing phenylanthracene
groups as **emitters** or hole transporting materials for
blue-emitting organic **electroluminescent**
devices)

RN 663954-33-4 HCAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA
INDEX NAME)



- IC ICM C07C013-615
ICS C09K011-06; H05B033-14; H05B033-22
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 25
- ST phenylanthracene **blue** emitting org electroluminescent device; **blue** emitting electroluminescent adamantane phenylanthracene; hole transport phenylanthracene org electroluminescent device
- IT Amines, uses
(aromatic, dopants; polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for **blue**-emitting organic electroluminescent devices)
- IT Electroluminescent devices
(**blue**-emitting; polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for **blue**-emitting organic electroluminescent devices)
- IT Luminescent substances
(electroluminescent; polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for **blue**-emitting organic electroluminescent devices)
- IT Hole transport
(polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for **blue**-emitting organic electroluminescent devices)
- IT 154853-83-5 663954-33-4
(dopants; polycyclic alicyclic compds. bearing phenylanthracene groups as **emitters** or hole transporting materials for **blue**-emitting organic electroluminescent devices)
- IT 665054-19-3P 665054-20-6P
(manufacture of polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for **blue**-emitting organic electroluminescent devices)
- IT 23674-20-6P 625854-02-6P
(manufacture of polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for **blue**-emitting organic electroluminescent devices)

devices)

IT 98-80-6, Benzeneboronic acid 602-55-1, 9-Phenylanthracene
876-53-9, 1,3-Dibromoadamantane 1564-64-3, 9-Bromoanthracene
5467-74-3, 4-Bromophenylboronic acid
(manufacture of polycyclic alicyclic compds. bearing
phenylanthracene groups as emitters or hole transporting
materials for blue-emitting organic electroluminescent
devices)

L36 ANSWER 30 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:191874 HCAPLUS

DOCUMENT NUMBER: 140:431061

TITLE: Blue mixed host organic light emitting devices

AUTHOR(S): Liu, S. W.; Huang, C. A.; Lee, J. H.; Yang, K.
H.; Chen, C. C.; Chang, Y.

CORPORATE SOURCE: Department of Mechanical Engineering,
Chang-Gung University, Tao-yuan, Taiwan

SOURCE: Thin Solid Films (2004), 453-454, 312-315
CODEN: THSFAP; ISSN: 0040-6090

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

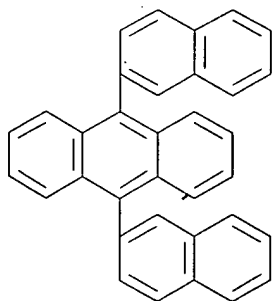
LANGUAGE: English

AB The lifetime is 1 of the main issues in the development of organic
LEDs (OLEDs). A new OLED with an emitting layer (EML) based on a
blue mixed-host (MH) structure is presented. Compared to the
conventional host-dopant system, the MH structure consists of 2
different hosts and 1-dopant materials. Using the structure with
different host ratio and fixed dopant concentration, the Commission
Internatl. de L'Eclairage (CIE 1931) coordinates will shift from
(0.17, 0.32) to (0.15, 0.22). The operating lifetime of optimal
device is much improved over the heterostructure OLEDs, which
shows the lifetime of .apprx.110 h with initial luminance of
10,000 cd/m². The luminance reaches 80,370 cd/m² at 10 V, which
corresponds to a luminous efficiency of 1.8 cd/A. The significant
improvement in device lifetime is attributed to the elimination of
the heterojunction interface and the prevention to the formation
of fluorescence quenchers. The MH structure can extend lifetime
without significantly changing the EML with common host material.

IT 122648-99-1, 9,10-Bis(2-naphthyl)anthracene
(blue mixed host organic LEDs containing)

RN 122648-99-1 HCAPLUS

CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



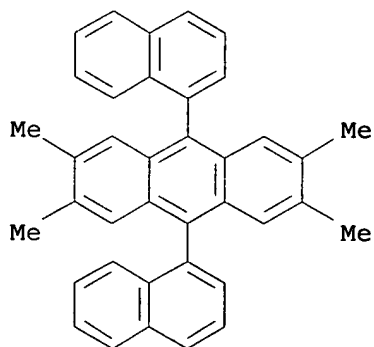
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 76

IT 122648-99-1, 9,10-Bis(2-naphthyl)anthracene 123847-85-8,
NPB (photoreceptor) 148896-39-3, Bis(10-
hydroxybenzo[h]quinolinato)beryllium
(blue mixed host organic LEDs containing)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 31 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:188001 HCAPLUS
DOCUMENT NUMBER: 140:414257
TITLE: Highly efficient blue electroluminescence
based on a new anthracene derivative
AUTHOR(S): Ying, Kan; Wang, Liduo; Gao, Yudi; Duan, Lian;
Wu, Guoshi; Qiu, Yong
CORPORATE SOURCE: Department of Chemistry, Organic
Optoelectronics Lab, Tsinghua University,
Beijing, 100084, Peop. Rep. China
SOURCE: Synthetic Metals (2004), 141(3), 245-249
CODEN: SYMEDZ; ISSN: 0379-6779
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel blue-light-emitting material, 2,3,6,7-tetramethyl-9,10-
dinaphthyl-anthracene (TMADN), was synthesized and characterized.
Organic light-emitting diode (OLED), which has a double-layer
structure, was fabricated. In this OLED, the homemade TMADN was
used as the light-emitting material and 4,7-diphenyl-1,10-
phenanthroline was used as the hole blocking/electron transporting
material. N,N'-biphenyl-N,N'-bis(1-naphthyl) [1,1'-biphenyl]-4,4'-
diamine was used as the hole transporting material. The peak
emission of electroluminescence (EL) is at .apprx.456 nm and the
CIE coordinates are (0.171, 0.228). The brightness of the device
is ≤ 5600 cd/m² at 17 V with the maximum EL efficiency of 2.2
cd/A.

IT 599200-49-4P
(preparation and blue electroluminescence of)
RN 599200-49-4 HCAPLUS
CN Anthracene, 2,3,6,7-tetramethyl-9,10-di-1-naphthalenyl- (9CI) (CA
INDEX NAME)



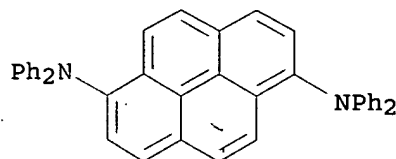
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
IT 599200-49-4P
(preparation and blue electroluminescence of)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 32 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:182957 HCAPLUS
DOCUMENT NUMBER: 140:243296
TITLE: Organic electroluminescent devices and organic
luminescent medium
INVENTOR(S): Matsuura, Masahide; Funahashi, Masakazu;
Fukuoka, Kenichi; Hosokawa, Chishio
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: PCT Int. Appl., 77 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004018588	A1	20040304	WO 2003-JP8463	2003 0703
W: CN, JP, KR				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
EP 1541657	A1	20050615	EP 2003-738656	2003 0703
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
US 2005064233	A1	20050324	US 2003-617397	2003 0711
PRIORITY APPLN. INFO.:				2002 0719
JP 2002-211308				A
WO 2003-JP8463				W
				2003 0703

OTHER SOURCE(S): MARPAT 140:243296
AB An organic electroluminescent device comprises a pair of electrodes
and an organic luminescent medium layer which is placed between the
electrodes and contains (A) a specific arylamine and (B) at least
one compound selected from among specific anthracene derivs., spiro
fluorene derivs., fused-ring compds., and metal complexes; and an
organic luminescent medium containing the components (A) and (B). The
organic electroluminescent device exhibits high color purity,
excellent heat resistance and a long lifetime and emits
blue to yellow light at high efficiency, and the organic
luminescent medium is suitable for use in such devices.
IT 76656-53-6
(organic electroluminescent devices and organic
luminescent medium)
RN 76656-53-6 HCAPLUS
CN 1,6-Pyrenediamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



IC ICM C09K011-06
ICS H05B033-14; H05B033-22
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 25, 74
IT 76656-53-6 122648-99-1 131625-67-7 171408-93-8
172285-79-9 172285-83-5 220721-68-6 244281-01-4
279672-22-9 349666-25-7 400606-81-7 475461-15-5
668019-24-7 668019-64-5 668019-76-9 668019-96-3
668020-07-3 668020-14-2 668020-20-0
668020-26-6 668020-28-8 668020-34-6 668020-39-1
668020-46-0 668020-53-9 668020-61-9
668020-67-5 668020-74-4 668020-81-3 668020-88-0
(organic electroluminescent devices and organic luminescent medium)
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 33 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:179026 HCAPLUS
DOCUMENT NUMBER: 140:375793
TITLE: Pure Deep Blue Light-Emitting Diodes from Alternating Fluorene/Carbazole Copolymers by Using Suitable Hole-Blocking Materials
AUTHOR(S): Lu, Jianping; Tao, Ye; D'iorio, Marie; Li, Yuning; Ding, Jianfu; Day, Michael
CORPORATE SOURCE: Institute for Microstructural Sciences and Institute for Chemical Process and Environmental Technology, National Research Council of Canada, Ottawa, ON, K1A 0R6, Can.
SOURCE: Macromolecules (2004), 37(7), 2442-2449
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The influences of the carbazole content on the photophys., electrochem., and electroluminescent properties of alternating fluorene/carbazole copolymers (PFnCz) (n = 1, 2, 3) with well-defined chemical structures were systematically studied. The incorporation of carbazole units into the polyfluorene (PF) backbone resulted in a blue shift of both the absorption and photoluminescence (PL) emission peaks, improved PL thermal stability, raised HOMO energy levels, and thus facilitated hole injection into the copolymers. Pure deep blue electroluminescence (EL) with narrow fwhms (full width at the half-maximum) (39-52 nm) and negligible low-energy emission bands was successfully achieved from the PFnCz copolymers by using 1,3,5-tris(4'-fluorobiphenyl-4-yl)benzene (F-TBB) as a hole-blocking layer and Alq3 as an electron injection/transporting layer. This device configuration

stabilized the blue emission from the PF derivs. An efficiency of 0.72 cd/A at a luminance of 100 cd/m² was obtained even with aluminum metal as the cathode. Voltage-luminance and voltage efficiency curves of PFnCz in a ITO/PFnCz/F-TBB/Alq3/LiF/Al device is given.

IT 685114-78-7P

(pure deep blue light-emitting diodes from alternating fluorene/carbazole copolymers by using suitable hole-blocking materials)

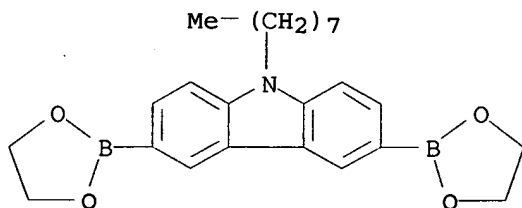
RN 685114-78-7 HCAPLUS

CN 9H-Carbazole, 3,6-di-1,3,2-dioxaborolan-2-yl-9-octyl-, polymer with 7,7''-dibromo-9,9,9',9',9'',9''-hexaoctyl-2,2':7',2''-ter-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 685114-69-6

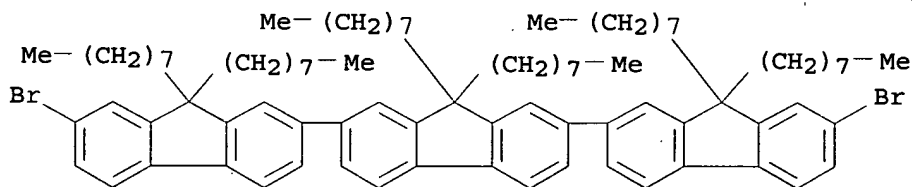
CMF C24 H31 B2 N O4



CM 2

CRN 646474-54-6

CMF C87 H120 Br2



CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 35, 73, 76

IT 685114-70-9P 685114-72-1P 685114-74-3P 685114-76-5P

685114-78-7P 685114-80-1P

(pure deep blue light-emitting diodes from alternating fluorene/carbazole copolymers by using suitable hole-blocking materials)

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 34 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:172662 HCAPLUS

DOCUMENT NUMBER: 140:365287

TITLE: Highly-efficient blue electroluminescence based on two emitter isomers

AUTHOR(S): Ying, Kan; Wang, Liduo; Duan, Lian; Hu, Yuanchuan; Wu, Guoshi; Qiu, Yong

CORPORATE SOURCE: Department of Chemistry, Key Lab of Organic Optoelectronics and Molecular Engineering, Tsinghua University, Beijing, 100084, Peop. Rep. China

SOURCE: Applied Physics Letters (2004), 84(9), 1513-1515
CODEN: APPLAB; ISSN: 0003-6951

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

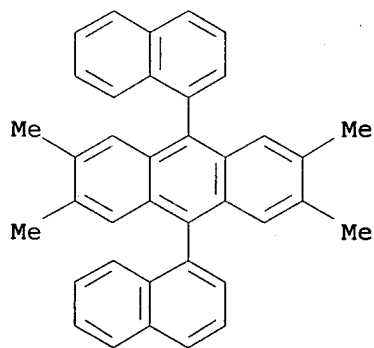
LANGUAGE: English

AB Highly-efficient blue organic light-emitting devices with a nondoped device structure were fabricated with two anthracene derivs., 2,3,6,7-tetramethyl-9,10-(1-dinaphthyl)-anthracene (α -TMADN) and 2,3,6,7-tetramethyl-9,10-(2-dinaphthyl)-anthracene (β -TMADN). The homemade α -TMADN, β -TMADN, or their blend were used as the light-emitting materials, and 4,7-diphenyl-1,10-phenanthroline was used as the hole blocking and electron transporting material, N,N'-biphenyl-N,N'-bis-(1-naphthalenyl)-[1,1'-biphenyl]-4,4'-diamine was used as the hole transporting material. The brightness of the device with β -TMADN as the light-emitting material is up to 10,000 cd/m² at 12 V with the maximum efficiency of 4.5 cd/A, which is better than that of the device with α -TMADN as the light-emitting material. The brightness of the same structure device with the blend of α -TMADN and β -TMADN as the light-emitting material, in which the ratio of α -TMADN to β -TMADN is 9:1, is >12,000 cd/m² at 15 V with the maximum efficiency of 5.2 cd/A.

IT 599200-49-4
(highly-efficient blue electroluminescence based on two emitter isomers)

RN 599200-49-4 HCAPLUS

CN Anthracene, 2,3,6,7-tetramethyl-9,10-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 22

IT 1662-01-7, 4,7-Diphenyl-1,10-phenanthroline 123847-85-8, NPB
599200-49-4 681439-71-4
(highly-efficient blue electroluminescence)

based on two emitter isomers)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 35 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:162657 HCAPLUS
DOCUMENT NUMBER: 140:225502
TITLE: Oligoarylene derivatives for organic
electroluminescent devices
INVENTOR(S): Ikeda, Hidetsugu; Matsuura, Masahide;
Kawamura, Hisayuki
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004016575	A1	20040226	WO 2003-JP10071	2003 0807
W: CN, KR, US RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
JP 2004075567	A2	20040311	JP 2002-234833	2002 0812
EP 1533290	A1	20050525	EP 2003-788055	2003 0807
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			JP 2002-234833	A 2002 0812
			WO 2003-JP10071	W 2003 0807

OTHER SOURCE(S): MARPAT 140:225502

AB The invention relates to oligoarylene derivs. represented by
Ar1-Ch-Ar2, Ch1-L-Ch2, Ar3-(L1)a-Ch3-(L2)b-Ar4, and
Ar5-Ch4-(Ar7)n-L3-(Ar8)m-Ch5-Ar6(1) [Ch, Ch1 and Ch2 = C14-20
condensed aromatic ring; Ch3, Ch4 and Ch5 = C14-20 arylene group;
Ar1-6 = aryl group containing 5-30 atoms; Ar7 and Ar8 = arylene group
containing 5-30 atoms; L1-3 = connecting group; and a, b, n and m = 0
or 1]. The oligoarylene derivs. are suited for use as a host
material of a blue electroluminescent material in an
organic electroluminescent device.

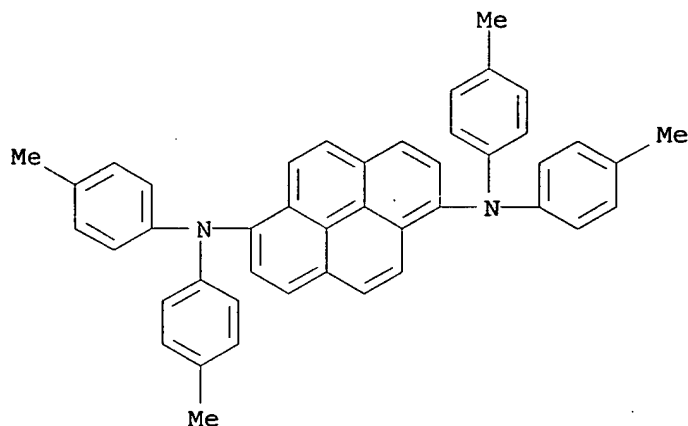
IT 663954-33-4P

(oligoarylene derivs. for organic electroluminescent
devices)

RN 663954-33-4 HCAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA

INDEX NAME)



IC ICM C07C015-62
ICS C09K011-06; H05B033-14; H05B033-22
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 25
IT Electroluminescent devices
(blue-emitting; oligoarylene derivs. for organic electroluminescent devices)
IT 154853-83-5P 663954-28-7P 663954-29-8P 663954-30-1P
663954-32-3P **663954-33-4P**
(oligoarylene derivs. for organic electroluminescent devices)
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 36 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:57426 HCAPLUS
DOCUMENT NUMBER: 140:101805
TITLE: Compacting moisture-sensitive organic materials in making an organic light-emitting device
INVENTOR(S): Ghosh, Syamal Kumar; Carlton, Donn Burton; Hatwar, Tukaram Kisan
PATENT ASSIGNEE(S): Eastman Kodak Company, USA
SOURCE: Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1383181	A2	20040121	EP 2003-77044	2003 0630

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,

EE, HU, SK
US 2004012120

A1

20040122

US 2002-195947

2002
0716

US 6706226

B2

20040316

JP 2004063464

A2

20040226

JP 2003-197908

2003
0716

PRIORITY APPLN. INFO.:

US 2002-195947

A

2002
0716

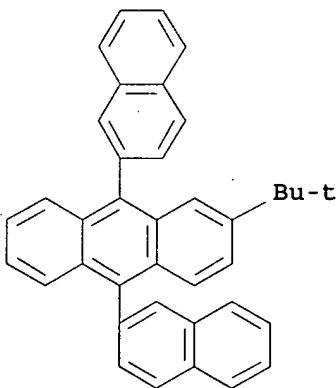
AB A method of compacting moisture-sensitive organic material adaptable for making an organic layer on a structure which will form part of an organic light-emitting device is described entailing placing such a desiccant material in a powder form inside a die cavity and applying a pressure to such a desiccant powder in the die cavity sufficient to compact into a porous desiccant bed; providing moisture-sensitive organic material in a powder form; and placing such moisture-sensitive organic material inside the die cavity over the porous desiccant bed, and applying sufficient heat to the moisture-sensitive organic material in the die cavity to cause moisture to escape from the moisture-sensitive organic material and be absorbed by the porous desiccant bed, and then applying sufficient pressure to compact the moisture-sensitive organic material into a solid organic pellet.

IT 274905-73-6

(blue emitting material; compacting
moisture-sensitive organic materials in making an organic
light-emitting device)

RN 274905-73-6 HCAPLUS

CN Anthracene, 2-(1,1-dimethylethyl)-9,10-di-2-naphthalenyl- (9CI)
(CA INDEX NAME)



IC ICM H01L051-20

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 76

IT 274905-73-6

(blue emitting material; compacting
moisture-sensitive organic materials in making an organic
light-emitting device)

L36 ANSWER 37 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:18631 HCAPLUS
 DOCUMENT NUMBER: 140:101743
 TITLE: Light emitting device
 INVENTOR(S): Yamazaki, Shunpei; Arai, Yasuyuki
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd.,
 Japan
 SOURCE: U.S. Pat. Appl. Publ., 27 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004004214	A1	20040108	US 2003-426971	2003 0501
JP 2004047447	A2	20040212	JP 2003-137219	2003 0515
PRIORITY APPLN. INFO.:			JP 2002-140033	A 2002 0515

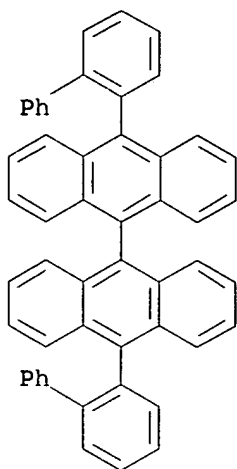
AB A light emitting device is described comprising light emitting elements formed between a lamination layer and an inorg. compound layer that transmits visual light, where the lamination layer is constructed of one unit or two or more units, and each unit is a laminated structure of a metal layer (e.g., Al, Al alloy) and an organic compound layer, wherein the lamination layer is formed on the primary surface of the plastic substrate (e.g., polyether sulfone, polyallylate, polyimide, polyamide, acrylic resin, epoxy resin, polyethylene terephthalate, polyethylenenaphthalate and polycarbonate), so that a flexible substrate structure can be obtained while preventing the substrate from deterioration with the transmission of oxygen or moisture content.

IT 172285-83-5

(blue luminescent layer; light emitting device having laminated structure on plastic substrate)

RN 172285-83-5 HCAPLUS

CN 9,9'-Bianthracene, 10,10'-bis([1,1'-biphenyl]-2-yl)- (9CI) (CA INDEX NAME)



IC ICM H01L035-24
INCL 257040000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 76
IT 5694-20-2D, Styryl amine, derivs. 65181-78-4, TPD 169224-61-7
172285-83-5

(blue luminescent layer; light emitting device having laminated structure on plastic substrate)

L36 ANSWER 38 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:937275 HCAPLUS

DOCUMENT NUMBER: 140:111802

TITLE: Novel Stable Blue-Light-Emitting Oligofluorene Networks Immobilized by Boronic Acid Anhydride Linkages

AUTHOR(S): Li, Yuning; Ding, Jianfu; Day, Michael; Tao, Ye; Lu, Jianping; D'iorio, Marie

CORPORATE SOURCE: Institute for Chemical Process and Environmental Technology (ICPET), National Research Council of Canada (NRC), Ottawa, ON, K1A 0R6, Can.

SOURCE: Chemistry of Materials (2003), 15(26), 4936-4943

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Thermal dehydration of boronic acid groups to form six-membered boronic acid anhydride (boroxine) was used to immobilize oligofluorenes. This approach appears to improve the photoluminescence stability of crosslinked films compared to polyfluorenes, i.e., emergence of long-wavelength emission upon thermal treatment usually observed in polyfluorenes was prevented. The fluorene dimer (F2BA), trimer (F3BA), and tetramer (F4BA) containing boronic acid groups were prepared; the compds. were readily soluble in common solvents such as THF, acetone, and DMF. Transparent thin films of these materials could be easily prepared by casting solns. in THF onto KBr disks or glass substrates.

Using mild reaction conditions (60-130° under vacuum for 2 h), the oligomers in the solid state readily undergo crosslinking reactions by the dehydration of boronic acid groups as evidenced by FT-IR spectroscopy and DSC/TGA studies. The resulting cross-linked amorphous networks exhibit high thermal stability (Td at 5% weight loss, 363-420°) and morphol. stability (Tg, 173-202°). Under UV irradiation, these compds. emit bright violet-blue (F2BA) and blue (F3BA and F4BA) light both in solution and in the solid state. The cured films exhibited almost identical UV-vis and fluorescence spectra even after heating at 150° for 24 h, showing no long wavelength emission. The fabrication of LED devices using F3BA or F4BA as the light-emitting layer and a carbazole diboronic acid (CzBA) as the hole-transporting layer demonstrated that these thermally curable diboronic acids can be used to achieve double- (or multi-) layered configurations.

IT 646474-62-6P, 7,7''-Bis(dihydroxyboranyl)-2,2':7',2''-ter(9,9-dioctylfluorene) homopolymer

(emitter layer in LED; preparation of monomers and crosslinking to obtain stable blue-light -emitting oligofluorene networks immobilized by boroxine linkages for LEDs)

RN 646474-62-6 HCAPLUS

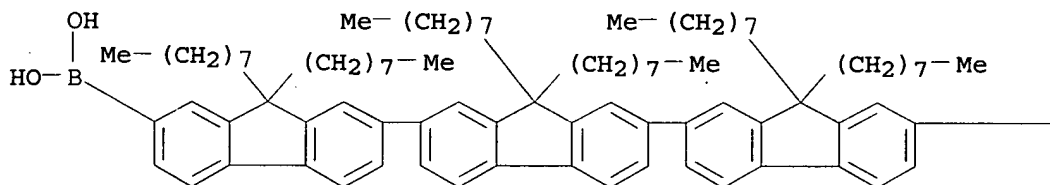
CN Boronic acid, (9,9,9',9',9'',9'''-hexaoctyl[2,2':7,2''-ter-9H-fluorene]-7,7''-diyl)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

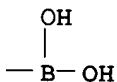
CRN 646474-56-8

CMF C87 H124 B2 O4

PAGE 1-A.



PAGE 1-B



CC 35-8 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 73

IT 646474-61-5P, 2,2'-Bis(7-dihydroxyboranyl-9,9-dioctylfluorene) homopolymer 646474-62-6P, 7,7''-Bis(dihydroxyboranyl)-2,2':7',2''-ter(9,9-dioctylfluorene) homopolymer

646474-63-7P, 7,7'''-Bis(dihydroxyboranyl)-2,2':7',2''':7'',2'''-quater(9,9-dioctylfluorene) homopolymer

(emitter layer in LED; preparation of monomers and crosslinking to obtain stable blue-light

-emitting oligofluorene networks immobilized by
boroxine linkages for LEDs)

REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 39 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:734698 HCAPLUS

DOCUMENT NUMBER: 139:252310

TITLE: Organic EL element and organic EL display

INVENTOR(S): Sotoyama, Wataru; Matsuura, Azuma; Sato,
Hiroyuki; Narusawa, Toshiaki

PATENT ASSIGNEE(S): Fujitsu Limited, Japan

SOURCE: Eur. Pat. Appl., 27 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1345278	A2	20030917	EP 2002-23311	2002 1017
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
JP 2003272864	A2	20030926	JP 2002-71525	2002 0315
US 2003186081	A1	20031002	US 2002-270200	2002 1015
US 6803126	B2	20041012		
PRIORITY APPLN. INFO.:			JP 2002-71525	A 2002 0315

OTHER SOURCE(S): MARPAT 139:252310

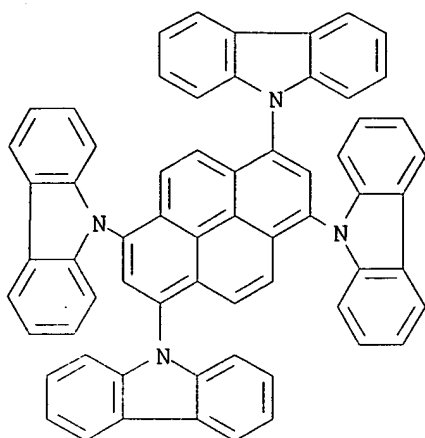
AB An organic EL element having excellent light-emitting efficiency,
light-emitting luminance and color purity of blue light
is provided. The organic EL element has an organic thin film layer
interposed between a pos. electrode and a neg. electrode, and
contains 1, 3, 6, 8-tetra(9-carbazolyl)pyrene or
4,4'-bis(9-carbazolyl)biphenyl derivs. as a light-emitting
material. Addnl., the light-emitting layer may contain
4,4'-bis(9-carbazolyl)biphenyl derivs.

IT 600156-21-6

(organic EL device and display)

RN 600156-21-6 HCAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-(1,3,6,8-pyrenetetrayl)tetrakis- (9CI)
(CA INDEX NAME)



IC ICM H01L051-30

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74

IT 58328-31-7, 4,4'-Bis(9-carbazolyl)biphenyl 600156-21-6
(organic EL device and display)

L36 ANSWER 40 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:613603 HCAPLUS

DOCUMENT NUMBER: 140:10285

TITLE: Strongly polarized and efficient blue organic light-emitting diodes using monodisperse glassy nematic oligo(fluorene)s

AUTHOR(S): Culligan, Sean W.; Geng, Yanhou; Chen, Shaw H.; Klubek, Kevin; Vaeth, Kathleen M.; Tang, Ching W.

CORPORATE SOURCE: Department of Chemical Engineering, Center for Optoelectronics and Imaging, University of Rochester, Rochester, NY, 14623-1212, USA

SOURCE: Advanced Materials (Weinheim, Germany) (2003), 15(14), 1176-1180

CODEN: ADVMEW; ISSN: 0935-9648

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Monodisperse glassy nematic oligo(fluorene)s, such as penta[9,9-bis(2-methylbutyl)fluorene], 2,7-bis[9,9-bis(2-methylbutyl)-9',9',9'',9'''-tetrakis(n-propyl)-7,2'; 7',2''-terfluoren-2-yl]-9,9-bis(n-propyl)fluorene, and 2,7'-bis[9,9-bis-(2-ethylhexyl)-9',9'-9'',9''',9''',9''''-octakis(2-methylbutyl)-7,2;7',2'';7'',2''';7''',2'''' pentafluoren-2-yl]9,9,9',9'-tetrakis(2-methylbutyl)-7,2'-bifluorene, were applied for the fabrication of strongly polarized and efficient, deep blue organic light-emitting diodes (OLEDs). Superior chemical purity and ease of material processing into monodomain films resulted in the highest electroluminescence (EL) dichroic ratio ever observed in polarized OLEDs. These OLEDs based on monodisperse oligo(fluorene)s showed a deeper blue emission with a higher luminance yield than those prepared with poly(fluorene)s. At almost the same film thickness, the EL dichroic ratio increased with an increasing chain length due to higher degree of uniaxial mol. alignment. The thinner film

had the higher EL dichroic ratio due to the stronger surface anchoring furnished by the conductive alignment layer.

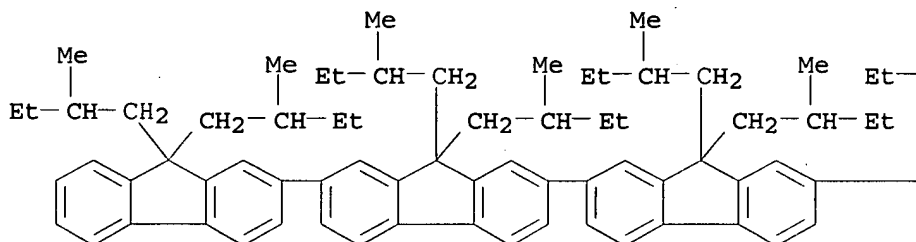
IT 500343-19-1

(rongly polarized and efficient blue organic light-emitting diodes using monodisperse glassy nematic oligo(fluorene)s)

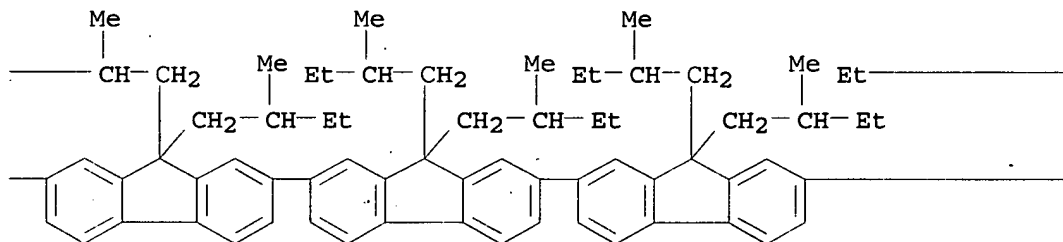
RN 500343-19-1 HCAPLUS

CN 2,2':7',2'':7''',2''':7''''',2''''':7''''''',2''''''':7'''''''''-Septi-9H-fluorene, 9,9,9',9',9'',9'',9''',9''''',9''''''',9''''''''',9''''''''',9''''''''''-tetradecakis(2-methylbutyl)- (9CI) (CA INDEX NAME)

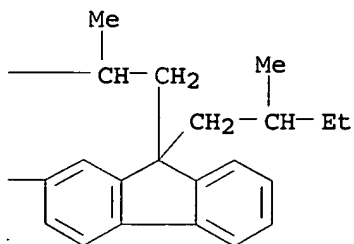
PAGE 1-A



PAGE 1-B



PAGE 1-C



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 75

IT 500343-19-1

(rongly polarized and efficient blue organic light-emitting diodes using monodisperse glassy nematic oligo(fluorene)s)

IT 491880-91-2 628706-45-6

(strongly polarized and efficient blue organic
light-emitting diodes using monodisperse
glassy nematic oligo(fluorene)s)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 41 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:417090 HCAPLUS

DOCUMENT NUMBER: 139:140649

TITLE: Blue and white emitting organic diodes based
on anthracene derivative

AUTHOR(S): Zhang, Zhi Lin; Jiang, Xue Yin; Zhu, Wen Qing;
Zheng, Xin You; Wu, You Zi; Xu, Shao Hong

CORPORATE SOURCE: Department of Materials Science, Shanghai
University, Shanghai, 201800, Peop. Rep. China

SOURCE: Synthetic Metals (2003), 137(1-3), 1141-1142
CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

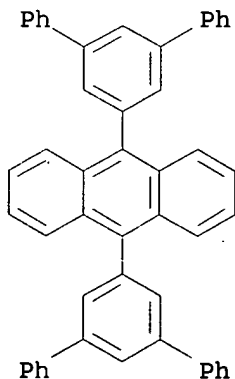
AB Organic light emitting diodes (OLED) with blue or white emission were
made from a new blue emitting material 9,10-bis(3',5'-
diaryl)phenyl anthracene (JBEM). The 2 devices have the same
structure except for a red dye doped in JBEM layer of the white
device. The white device shows higher quantum efficiency and more
than twice stability than that of the blue device. Maximum
luminance of 14850 cd/m², quantum efficiency of 1.75% and a half
lifetime of 2860h at initial luminance of 100 cd/m² were achieved.
The doping is very important for improving the EL properties,
particularly the stability. With comparison of a blue device from
distyrylarylene derivs., the blue device using JBEM shows 5 times
better stability, indicating JBEM is a promising blue emitter.

IT 247575-24-2, Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-
5'-yl)-

(blue and white emitting organic LEDs
based on anthracene derivative)

RN 247575-24-2 HCAPLUS

CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA
INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related

Properties)

Section cross-reference(s): 22

IT 247575-24-2, Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)-

(blue and white emitting organic LEDs
based on anthracene derivative)

REFERENCE COUNT: 9. THERE ARE 9 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 42 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:417040 HCAPLUS

DOCUMENT NUMBER: 139:140625

TITLE: Doped blue emitters of 9,10-di(2-naphthyl)anthracene in organic electroluminescent devices

AUTHOR(S): Liu, Tswen-Hsin; Shen, Wen-Jian; Yen, Chia-Kuo; Iou, Chung-Yeh; Chen, Hsian-Hung; Banumathy, B.; Chen, Chin H.

CORPORATE SOURCE: Microelectronics & Information Systems
Research Center Department of Applied
Chemistry, National Chiao Tung University,
Hsinchu, 30050, Taiwan

SOURCE: Synthetic Metals (2003), 137(1-3), 1033-1034
CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

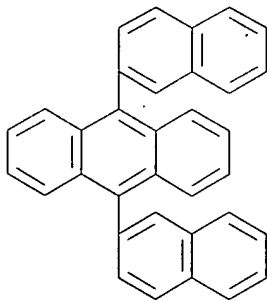
LANGUAGE: English

AB Blue EL emission of 9,10-di(2-naphthyl)anthracene (ADN) based emitter in OLED is highly dependent upon its thickness and attenuated by the microcavity effect of the emitter. By carefully tuning the thickness of ADN and optimizing the doping concentration of TBP, 1 of the highest efficiencies reported for the anthracene based blue emitter at 6.6 cd/A with a CIE of $x = 0.13$; $y = 0.21$ is achieved.

IT 122648-99-1, Anthracene, 9,10-di-2-naphthalenyl-
(TBP-doped ADN; doped blue emitters of
9,10-di(2-naphthyl)anthracene in organic LEDs containing)

RN 122648-99-1 HCAPLUS

CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



9,10-di(2-naphthyl)anthracene in organic LEDs containing)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

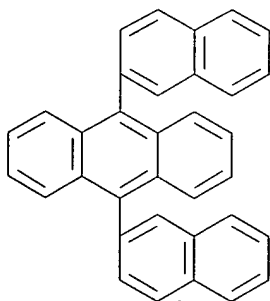
L36 ANSWER 43 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:95585 HCAPLUS
DOCUMENT NUMBER: 138:375544
TITLE: Blue and white organic electroluminescent
devices based on 9,10-bis(2'-
naphthyl)anthracene
AUTHOR(S): Zhang, X. H.; Liu, M. W.; Wong, O. Y.; Lee, C.
S.; Kwong, H. L.; Lee, S. T.; Wu, S. K.
CORPORATE SOURCE: Department of Physics and Materials Science,
Center of Super-Diamond and Advanced Films
(COSDAF), City University of Hong Kong, Hong
Kong, Peop. Rep. China
SOURCE: Chemical Physics Letters (2003), 369(3,4),
478-482
CODEN: CHPLBC; ISSN: 0009-2614
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A blue emitting material, 9,10-bis(2'-naphthyl)anthracene (BNA),
was synthesized and used as a host emitting material in organic
light-emitting devices (OLEDs). Devices with a configuration of
indium-tin oxide/ α -naphthylphenylbiphenyl diamine/BNA-based
emitting layer/tris(8-hydroxyquinoline) aluminum/Mg:Ag have been
constructed. When BNA was used without adding any dopant, the
device emits blue light with a peak at 444 nm. A high-performance
white light OLED was obtained by doping the BNA layer
simultaneously with perylene and 4-(dicyanomethylene)-2-t-butyl-6-
(1,1,7,7-tetramethyljulolidyl-9-enyl)-4H-pyran (DCJTB) (a red
emitting dopant).

IT 122648-99-1
(emitting layer; blue and white organic
electroluminescent devices based on
9,10-bis(2'-naphthyl)anthracene)

RN 122648-99-1 HCAPLUS

CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



electroluminescent devices based on
9,10-bis(2'-naphthyl)anthracene)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 44 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:764246 HCAPLUS

DOCUMENT NUMBER: 138:63175

TITLE: An efficient pure blue organic light-emitting
device with low driving voltages

AUTHOR(S): Li, Yanqing; Fung, Man Keung; Xie, Zhiyuan;
Lee, Shuit-Tong; Hung, Liang-Sun; Shi, Jianmin

CORPORATE SOURCE: Center of Super-Diamond and Advance Films
(COSDAF) and Department of Physics & Materials
Science, City University of Hong Kong, Hong
Kong, Peop. Rep. China

SOURCE: Advanced Materials (Weinheim, Germany) (2002),
14(18), 1317-1321

CODEN: ADVMEW; ISSN: 0935-9648

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

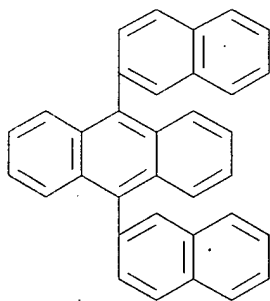
LANGUAGE: English

AB A pure blue OLED device with reduced driving voltage has been
constructed from an emissive layer of doped 9,10-bis-(β -
naphthyl)-anthrene, a hole-blocking/electron transport layer for
carrier and exciton confinement, and a MgAg cathode with a thin
LiF film on top to further decrease the driving voltage.

IT 122648-99-1
(dopant; efficient pure blue organic light-
emitting device with low driving voltages)

RN 122648-99-1 HCAPLUS

CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

Section cross-reference(s): 74

IT 122648-99-1
(dopant; efficient pure blue organic light-
emitting device with low driving voltages)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 45 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

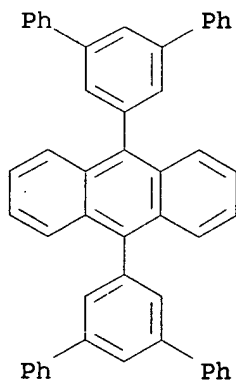
ACCESSION NUMBER: 2002:762833 HCAPLUS

DOCUMENT NUMBER: 137:343656
 TITLE: Two kinds of blue organic light emitting materials
 AUTHOR(S): Zheng, Xin-you; Wu, You-zhi; Zhu, Wen-qing; Zhang, Bu-xin; Jiang, Xue-yin; Zhang, Zhi-lin; Xu, Shao-hong
 CORPORATE SOURCE: School of Material Science & Engineering, Shanghai University, Shanghai, 201800, Peop. Rep. China
 SOURCE: Faguang Xuebao (2002), 23(4), 357-360
 CODEN: FAXUEW; ISSN: 1000-7032
 PUBLISHER: Kexue Chubanshe
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese

AB Two kinds of blue OLEDs with the structure ITO/CuPc/NPB/JBEM: perylene/Alq/Mg:Ag [Device(J)] and ITO/CuPc/NPB/DPVBi:perylene/Alq/Mg:Ag[Device(D)] were studied. The maximum luminance were 7,526 cd/m² and 6,123 cd/m², maximum luminous efficiency were 1.45 lm/W and 0.83 lm/W for Device(J) and Device(D), resp. The difference of luminance and efficiency was not obvious for the 2 devices. However, there was remarkable difference for their lifetime. The Device(J) achieved the longer half life of 1,035 h at initial luminance of 100 cd/m², and that of Device(D) was only 255 h. According to their energy level diagrams, the difference of stability may originate from light emitting materials in the 2 devices. It may be attributed to the higher thermal stability of JBEM mols. than that of DPVBi. JBEM may be a promising blue organic light emitting materials.

IT 247575-24-2
 (blue organic light emitting materials)

RN 247575-24-2 HCAPLUS
 CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 147-14-8, Copper phthalocyanine 198-55-0, Perylene 2085-33-8, Al 8q 37271-44-6 50926-11-9, ITO 123847-85-8, NPB 142289-08-5, DPVBi 247575-24-2
 (blue organic light emitting materials)

L36 ANSWER 46 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:600244 HCAPLUS

DOCUMENT NUMBER: 137:301804

TITLE: Blue-Emitting Anthracenes with End-Capping
DiarylaminesAUTHOR(S): Danel, Krzysztof; Huang, Tai-Hsiang; Lin,
Jiann T.; Tao, Yu-Tai; Chuen, Chang-HaoCORPORATE SOURCE: Institute of Chemistry, Academia Sinica,
Taipei, WA, 115, USASOURCE: Chemistry of Materials (2002), 14(9),
3860-3865

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB 2-Tert-butyl-9,10-bis(bromoaryl)anthracenes were synthesized from 2-tert-butyl-9,10-anthraquinone. Pd-catalyzed C-N bond formation between these bromo compds. and diarylamines provides stable 2-tert-butyl-9,10-diarylanthracenes containing two peripheral diarylamines (anth). They possess high thermal decomposition temperature ($T_d > 450^\circ$) and form a stable glass ($T_g > 130^\circ$). also, they are fluorescent in the blue region with moderate to good quantum efficiencies. Two types of light-emitting diodes (LED) were constructed from anth, (I) ITO/anth/TPBI/Mg:Ag and (II) ITO/anth/Alq3/Mg:Ag, where TPBI and Alq3 are 1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene and tris(8-hydroxyquinolinato)aluminum, resp. In type I devices, the anth function as the hole-transporting and emitting material. In type II devices, emission from Alq3 is observed. Several blue-light-emitting type I devices exhibit good maximum brightness and phys. performance. The relation between the energy levels of the anth and the performance of the light-emitting diode is discussed.

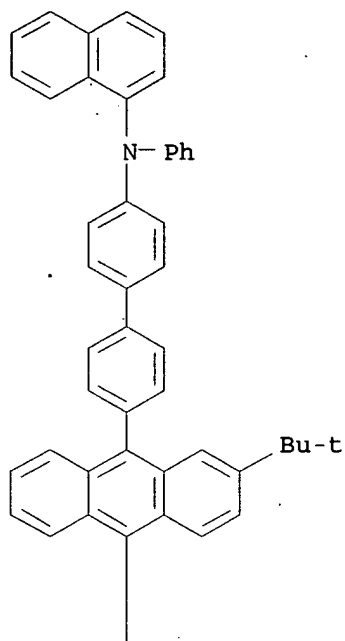
IT 468751-06-6P

(blue-emitting anthracenes with end-capping
diarylamines and their properties and applications)

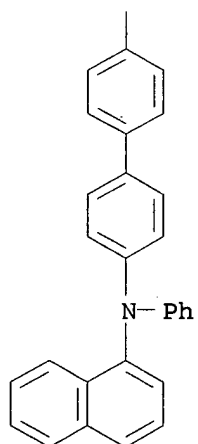
RN 468751-06-6 HCAPLUS

CN 1-Naphthalenamine, N,N'-[[2-(1,1-dimethylethyl)-9,10-anthracenediyl]bis([1,1'-biphenyl]-4',4-diyl)]bis[N-phenyl- (9CI)
(CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 25, 72

IT 468751-02-2P 468751-03-3P 468751-04-4P 468751-05-5P
468751-06-6P 468751-07-7P

(blue-emitting anthracenes with end-capping
diarylamines and their properties and applications)

REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 47 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:587825 HCAPLUS

DOCUMENT NUMBER: 137:301792

TITLE: Green and Yellow Electroluminescent Dipolar Carbazole Derivatives: Features and Benefits of Electron-Withdrawing Segments

AUTHOR(S): Thomas, K. R. Justin; Lin, Jiann T.; Tao, Yu-Tai; Chuen, Chang-Hao

CORPORATE SOURCE: Institute of Chemistry, Academia Sinica, Nankang, 115, Taiwan

SOURCE: Chemistry of Materials (2002), 14(9), 3852-3859

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New multiply substituted carbazole derivs. containing fluorene or phenylene conjugated oxadiazole segments and quinoxaline units were obtained by Pd-catalyzed C-N coupling reactions. They are amorphous with the glass transition temperature (T_g) in the range 104-176°. The emission color of the materials varies from blue to yellow and is dependent on the nature of the electron-withdrawing segments and solvents. Two reversible 1-electron oxidns. were observed for these mols. in cyclic voltammograms, which originate from the peripheral 3,6-diarylamino units in the 3,6,9-trisubstituted derivs. and diarylamine and carbazole segments in the 3,9-disubstituted compds. Redns. originating from quinoxaline segments were also located for the mols. incorporating quinoxaline moieties. The double-layer organic light-emitting diodes fabricated using these compds. as hole-transporting/emitting layers and TPBI or Alq3 as an electron-transporting layer emit bluish green to yellow colors. The recombination zone is restricted in the HTL layer for the quinoxaline-containing mols. irres. of the electron-transporting layer used and emission occurs from them. However, for the oxadiazole derivs. emission in the Alq3-based devices is either red shifted or resembles that of Alq3. Cyclic voltammetric and spectroscopic data support more pronounced electron affinity for the quinoxaline-incorporated carbazole derivs. than for the oxadiazole-tethered carbazole materials.

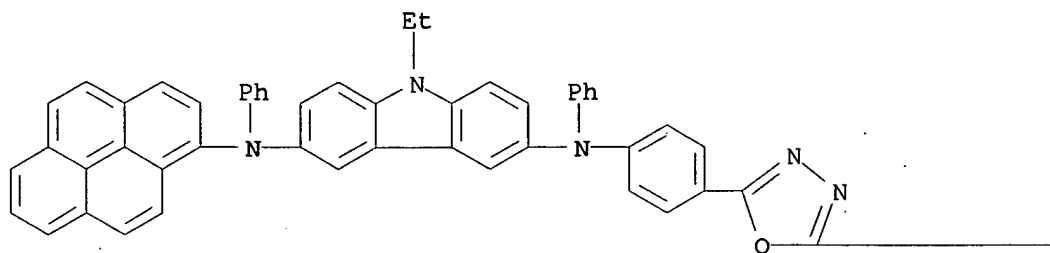
IT 468062-31-9P

(green and yellow electroluminescent dipolar carbazole derivs. and their electrochem. and spectral and luminescent properties affected by electron-withdrawing segments)

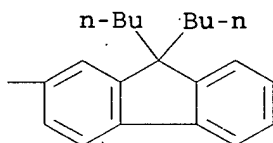
RN 468062-31-9 HCAPLUS

CN 9H-Carbazole-3,6-diamine, N-[4-[5-(9,9-dibutyl-9H-fluoren-2-yl)-1,3,4-oxadiazol-2-yl]phenyl]-9-ethyl-N,N'-diphenyl-N'-1-pyrenyl-(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 72, 76

IT 468062-26-2P 468062-27-3P 468062-28-4P 468062-29-5P

468062-30-8P 468062-31-9P 468062-32-0P

(green and yellow **electroluminescent** dipolar carbazole derivs. and their electrochem. and spectral and **luminescent** properties affected by electron-withdrawing segments)

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 48 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:537751 HCAPLUS

DOCUMENT NUMBER: 137:176830

TITLE: Stable and current independent white-emitting organic diode

AUTHOR(S): Jiang, Xue-yin; Zhang, Zhi-lin; Zhang, Bu-xin; Zhu, Wen-qing; Zheng, Xin-you; Xu, Shao-hong
CORPORATE SOURCE: School of Materials Science & Engineering, Shanghai University, Shanghai, 201800, Peop. Rep. China

SOURCE: Faguang Xuebao (2002), 23(2), 165-170
CODEN: FAXUEW; ISSN: 1000-7032

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB White organic light emitting diodes with new blue material and 2 kinds of structures were constructed: 1 with blue and red emission in a same layer, the other with blue and red emission in separated layers. The configurations of the devices are

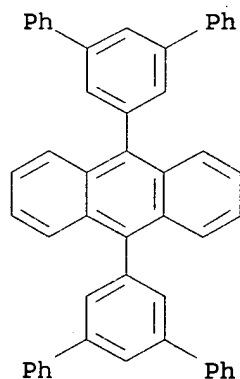
ITO/CuPc/NPB/JBEM(P):DCJT/Alq/MgAg (Device 1) and ITO/CuPc/NPB/JBEM(P)/Alq:DCJT/Alq/MgAg (Device 2). Here Cu phthalocyanine (CuPc) is the buffer layer; N,N'-bis-(1-naphthyl)-N,N'-diphenyl-1,1'-biphenyl-4,4'-diamine (NPB) is the hole transporting layer (HTL); 9,10-bis(3',5'-diphenylphenyl)anthracene doped with perylene (JBEM(P)) is a new blue emitting material; tris(8-quinolinolato)aluminum (Alq) is the electron transporting layer (ETL), and DCJT is a red dye. A stable and current independent white OLED was obtained in the device with blue and red emission in the same layer. It shows a maximum luminance of 14,850 cd/m², an efficiency of 2.88 lm/W, Commission Internationale de l'Eclairage (CIE) coordinates $x = 0.32$, $y = 0.38$ (at 4-200 mA/cm²), and the half lifetime 2860 h at the starting luminance of 100 cd/m². The device with blue and red in the same layer has better luminance, efficiency, and stability than the device with blue and red in separated layers.

IT 247575-24-2, Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)-

(stable and current independent white-emitting organic LED using JBEM(P) blue-emitting material and DCJT red-emitting material in same or sep. layers)

RN 247575-24-2 HCAPLUS

CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 76

IT 147-14-8, Copper phthalocyanine 200052-70-6, DCJT
247575-24-2, Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)-

(stable and current independent white-emitting organic LED using JBEM(P) blue-emitting material and DCJT red-emitting material in same or sep. layers)

L36 ANSWER 49 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:422464 HCAPLUS

DOCUMENT NUMBER: 137:192415

TITLE: Stable and current independent white-emitting organic diode

AUTHOR(S): Jiang, Xue Yin; Zhang, Zhi Lin; Zhang, Bu Xin;

CORPORATE SOURCE: Zhu, Wen Qing; Xu, Shao Hong
Department of Materials Science, Shanghai
University, Shanghai, Jiading, 201800, Peop.
Rep. China

SOURCE: Synthetic Metals (2002), 129(1), 9-13
CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

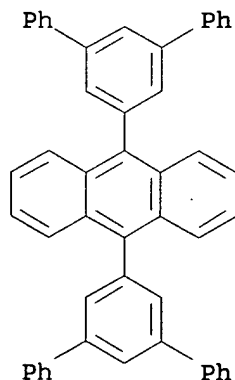
LANGUAGE: English

AB White organic light emitting diodes (OLEDs) with new blue material and two kinds of structures have been constructed: one with blue and red emission in a same layer, the other with blue and red emission in separated layers. The configurations of the devices are ITO/CuPc/NPB/JBEM(P):DCJT/Alq/MgAg (Device1) and ITO/CuPc/NPB/JBEM(P)/Alq:DCJT/Alq/MgAg (Device2). Here, copper phthalocyanine (CuPc) is the buffer layer; N,N'-bis(1-naphthyl)-N,N'-diphenyl-1,1'-biphenyl-4,4'-diamine (NPB) is the hole transporting layer (HTL); 9,10-bis(3,5'-diaryl)phenyl anthracene doped with perylene (JBEM(P)) is a new blue emitting material; tris(8-quinolinolato)aluminum complex (Alq) is the electron transporting layer (ETL), and DCJT is a red dye. A stable and current independent white OLED has been obtained in the device with blue and red emission in the same layer. It shows a maximum luminance of 14 850 cd/m², an efficiency of 2.88 Lm/W, Commission Internationale de l'Eclairage (CIE) coordinates x=0.32, yr=0.38 from 4 to 200 mA/cm², and the half lifetime 2860 h at the starting luminance of 100 cd/m². The device with blue- and red-emitting materials in the same layer has better luminance, efficiency and stability than the device with blue- and red-emitting materials in separated layers.

IT 247575-24-2
(undoped film or perylene-doped **blue-emitting** material; stable and current independent white-**emitting** organic diode employing JBEM(P) **blue-emitting** material and DCJT red-**emitting** material in same or sep. layers)

RN 247575-24-2 HCAPLUS

CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 22, 76

IT 247575-24-2

(undoped film or perylene-doped blue-emitting material; stable and current independent white-emitting organic diode employing JBEM(P) blue-emitting material and DCJT red-emitting material in same or sep. layers)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 50 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:313077 HCAPLUS

DOCUMENT NUMBER: 136:332517

TITLE: Blue phosphors for organic electroluminescent devices

INVENTOR(S): Kim, Sung Han; Yoo, Han Sung; Kwon, Soon Ki;
Kim, Yun Hi; Sin, Dong Dhul; Lee, Hyun Uk;
Chung, Hyung Chul

PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd., S. Korea

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

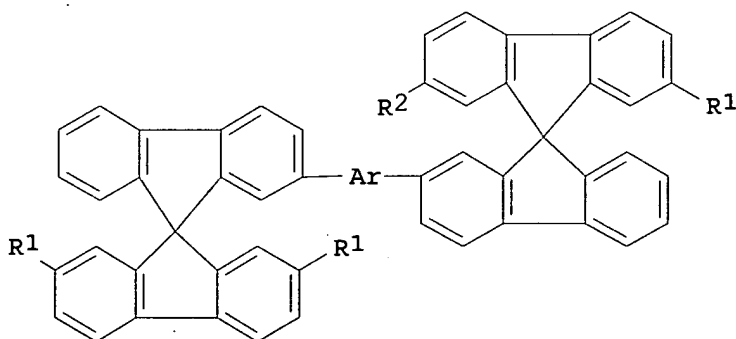
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002121547	A2	20020426	JP 2001-154369	2001 0523
KR 2002030371	A	20020425	KR 2000-60968	2000 1017
US 2002055013	A1	20020509	US 2001-862449	2001 0523
US 6808826	B2	20041026		
PRIORITY APPLN. INFO.:			KR 2000-60968	A 2000 1017

OTHER SOURCE(S): MARPAT 136:332517
GI



I

AB The phosphors comprise a spirobifluorene derivative I (Ar = C6-20 aryl, C6-20 aryl having C1-20 alkyl, C6-20 aryl having C1-20 alkoxy; R_{1,2} = H, C1-20 alkyl, C6-20 aryl having C1-20 alkyl; C6-20 aryl having C1-20 alkoxy).

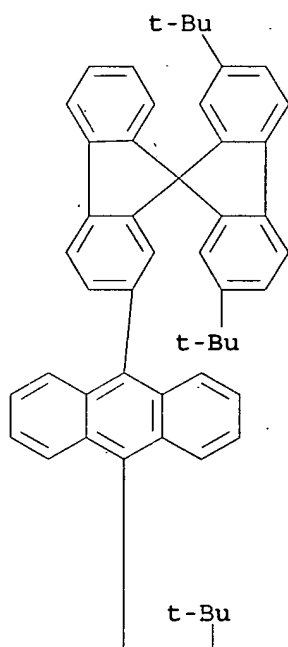
IT 393841-79-7

(blue phosphors for organic electroluminescent devices)

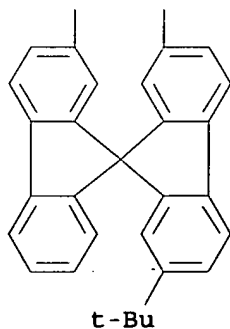
RN 393841-79-7 HCAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2''-(9,10-anthracenediyl)bis[2',7'-bis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IC ICM C09K011-06

USHA SHRESTHA EIC 1700 REM 4B28

ICS C09K011-06; H05B033-14
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 147-14-8, Copper phthalocyanine 12798-95-7 50926-11-9, ITO
65181-78-4, TPD 123847-85-8, α -NPD 393841-79-7
413627-08-4

(blue phosphors for organic electroluminescent devices)

L36 ANSWER 51 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:299600 HCAPLUS

DOCUMENT NUMBER: 137:93475

TITLE: Light-emitting carbazole derivatives for electroluminescent materials

AUTHOR(S): Lin, Jiann T'suen; Thomas, K. R. Justin; Tao, Yu-Tai; Ko, Chung-Wen

CORPORATE SOURCE: Institute of Chemistry, Academia Sinica, Taipei, 115, Taiwan

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2002), 4464 (Organic Light-Emitting Materials and Devices V), 307-316

CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal

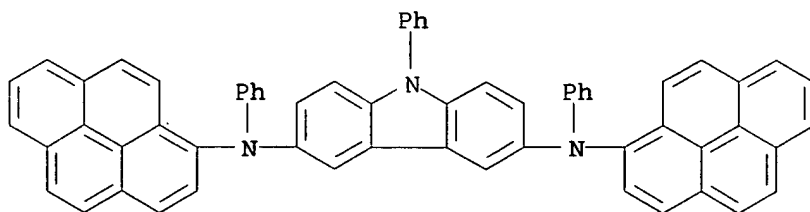
LANGUAGE: English

AB Amorphous carbazole derivs. containing peripheral diarylamines at the 3- and 6-positions and an Et or aryl substituent at the 9-position of the carbazole moiety were synthesized. These new carbazole compds. (carbs) possess high glass transition temps. (Tg: 120- 194 degree(s)C) and high thermal decomposition temps. (Td°450 degree(s)C). The compds. are weakly to moderately luminescent with the emission wavelength ranging from green to blue. Two types of light-emitting diodes (LED) were constructed from carb: (I) ITO/carb/TPBI/Mg:Ag and (II) ITO/carb/Alq3/Mg:Ag, where TPBI and Alq3 are 1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene and tris(8-hydroxyquinoline) Al, resp. In type I devices the carb functions as the hole-transporting as well as emitting material. In type II devices either carb and/or Alq3 is the light emitting material. Several green light-emitting devices exhibit exceptional maximum brightness and the phys. performance is superior to those of typical green-light-emitting devices of the structure ITO/diamine/Alq3/Mg:Ag. Relation between the LUMO of the carb and the performance of the light-emitting diode is discussed.

IT 340162-05-2
(light-emitting carbazole derivs. for electroluminescent materials)

RN 340162-05-2 HCAPLUS

CN 9H-Carbazole-3,6-diamine, N,N',9-triphenyl-N,N'-di-1-pyrenyl-(9CI) (CA INDEX NAME)



CC 22-9 (Physical Organic Chemistry)
 Section cross-reference(s): 73, 74, 76
 IT 144726-91-0 340162-05-2 340162-07-4
 340162-08-5 373390-01-3 373390-02-4
 373390-03-5 373390-04-6 373390-05-7
 373390-06-8 410547-42-1 441351-17-3 441351-18-4
 441351-19-5

(light-emitting carbazole derivs. for
 electroluminescent materials)

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L36 ANSWER 52 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:98794 HCAPLUS

DOCUMENT NUMBER: 136:142361

TITLE: Novel condensed heterocyclic compounds,
 blue light-emitting materials, and
 blue light-emitting devices

INVENTOR(S): Ise, Toshihiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

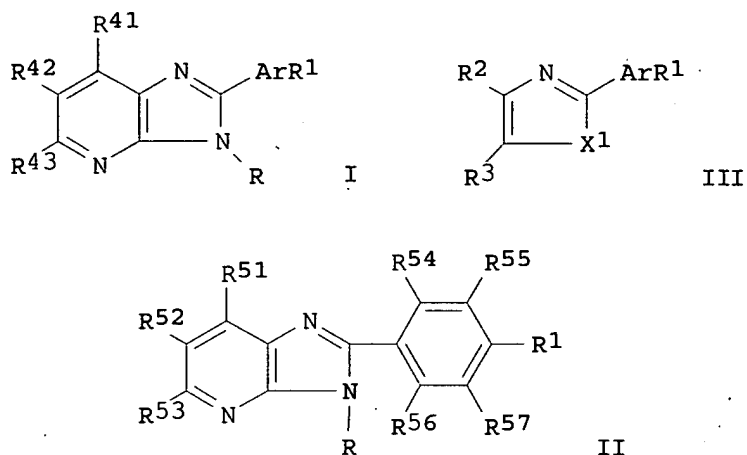
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002038141	A2	20020206	JP 2000-229125	2000 0728

PRIORITY APPLN. INFO.: JP 2000-229125

2000
0728

OTHER SOURCE(S): MARPAT 136:142361

GI



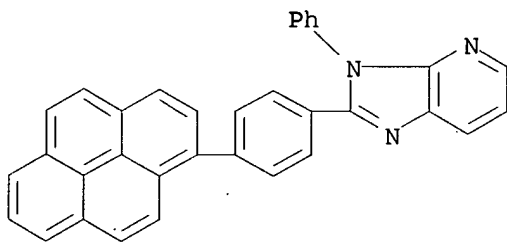
AB Heterocyclic compds., which work as light-emitting materials, I and II (R1 = condensed ring including aromatic and heterocycle; R, R41-43, R51-57 = H, substituent group; Ar = arylene, divalent heterocycle); light-emitting materials III (R2, R3 = H, substituent group, R2 + R3 may form ring; X1 = O, S, Se, Te, NR); and devices including light-emitting layers containing the above stated compds., optionally dispersed in polymers, sandwiched in between a pair of electrodes are claimed. Also claimed are further specified Markush structures for III. **Blue** light-emitting materials having high color purity and giving strong light intensity are obtained. The materials are suitable for use in displays, as laser dyes, as light sources, etc.

IT 392661-70-0P

(novel condensed heterocyclic compds. showing **blue** light emission for **electroluminescent** devices)

RN 392661-70-0 HCAPLUS

CN 3H-Imidazo[4,5-b]pyridine, 3-phenyl-2-[4-(1-pyrenyl)phenyl]- (9CI)
(CA INDEX NAME)



IC ICM C09K011-06

ICS C09K011-06; C07D235-18; C07D471-04; C07D487-04; H05B033-14

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 28, 74

ST imidazopyridine **blue** light emitting device; condensed heterocycle **blue** light emitting

IT Electroluminescent devices

(blue-emitting; novel condensed heterocyclic compds. showing blue light emission for electroluminescent devices)

IT 392661-70-0P
(novel condensed heterocyclic compds. showing blue light emission for electroluminescent devices)

IT 392661-71-1P
(novel condensed heterocyclic compds. showing blue light emission for electroluminescent devices)

IT 350025-73-9P 350025-74-0P
(novel condensed heterocyclic compds. showing blue light emission for electroluminescent devices)

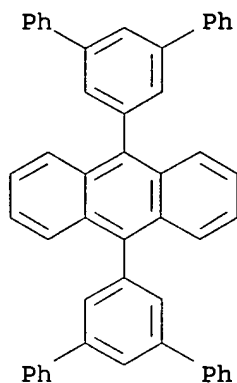
IT 62-53-3, Aniline, reactions 586-75-4, 4-Bromobenzoyl chloride 5470-18-8, 2-Chloro-3-nitropyridine 34949-41-2 68572-88-3 349666-24-6
(novel condensed heterocyclic compds. showing blue light emission for electroluminescent devices)

L36 ANSWER 53 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:910939 HCAPLUS
DOCUMENT NUMBER: 136:223760
TITLE: A blue organic emitting diode from anthracene derivative
AUTHOR(S): Jiang, Xue-Yin; Zhang, Zhi-Lin; Zheng, Xin-You; Wu, You-Zhi; Xu, Shao-Hong
CORPORATE SOURCE: Department of Materials Science, Shanghai University, Jiading, Shanghai, 201800, Peop. Rep. China
SOURCE: Thin Solid Films (2001), 401(1,2), 251-254
CODEN: THSFAP; ISSN: 0040-6090
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A blue, organic, light-emitting diode (OLED) was made from a new blue emitting material. The structure of the blue device is In Sn oxide (ITO)/CuPc/NPB/JBEM:perylene/Alq/MgAg. Here Cu phthalocyanine (CuPc) was used as a buffer layer, N,N'-bis-(1-naphthyl)-N,N'-diphenyl-1,1'-biphenyl-4,4'-diamine (NPB) as the hole transporting layer, 9,10-bis(3',5'-diaryl)phenyl anthracene (JBEM) as the blue emitting host, perylene as the blue dopant, Tris(8-quinolinolato) Al complex (Alq) as the electron transporting material, and MgAg alloy as the cathode. The blue device has a maximum luminance of 7526 cd/m², and the luminance at a c.d. of 20 mA/cm² is 408 cd/m². It has a maximum efficiency of 1.45 lm/W, Commission Internationale de l'Eclairage (CIE) coordinates x = 0.14, y = 0.21, and a half-life of 1035 h at initial luminance of 100 cd/m². It shows a better stability than the blue device from distyrylarylene derivs. as the blue emitting host, and also perylene as the dopant with the same structure.

IT 247575-24-2
(blue organic emitting diode from anthracene derivative)

RN 247575-24-2 HCAPLUS
CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 147-14-8, Copper phthalocyanine 2085-33-8, Aluminum tris(8-hydroxyquinolino) 123847-85-8, NPB 142289-08-5 247575-24-2

(blue organic emitting diode from anthracene derivative)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 54 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:880187 HCAPLUS

DOCUMENT NUMBER: 136:158038

TITLE: Novel blue emitting material with high color purity

AUTHOR(S): Kim, Yun-Hi; Shin, Dong-Cheol; Kim, Sung-Han; Ko, Chang-Hee; Yu, Han-Sung; Chae, Yun-Soo; Kwon, Soon-Ki

CORPORATE SOURCE: Department of Polymer Science & Engineering and Research Institute of Industrial Technology, Gyeongsang National University, Jinju, 660-701, S. Korea

SOURCE: Advanced Materials (Weinheim, Germany) (2001), 13(22), 1690-1693

CODEN: ADVMEW; ISSN: 0935-9648

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The synthesis of the novel luminescent material 9,10-bis[(2",7"-di-t-butyl)9',9"-spirobifluorenyl]anthracene (TBSA), and the fabrication and performance of a pure blue-emitting organic electroluminescent device (OLED), which has a non-doping structure for full color devices with TBSA as the emitting material, were described. The devices had the configuration of indium tin oxide (ITO)/ copper phthalocyanine (CuPc)/1,4-bis[(1-naphthylphenyl)amino]biphenyl(a-NPD)/TBSA/tris(8-hydroxyquinoline) aluminum (Alq3)/LiF/Al, where TBSA was used as the emitting layer, CuPc as the hole-injection layer, a-NPD as the hole-transporting layer (HTL), Alq3 as the electron-transporting layer (ETL), and LiF as the electron-injection layer. The low mol. weight, bis(spirobifluorenyl)anthracene presented a stable non-polymeric organic glass with high glass transition temps.,

usually associated with amorphous polymers. High quality amorphous films of this newly synthesized TBSA with high morphol. stability could be prepared by vapor deposition. With the newly designed non-doped, blue emitting material in a multilayer device structure, it was possible to achieve a luminous efficiency of 1.22 lm/W at a voltage of 7.7 V and brightness of 300 cd/m². The most important result was the achievement of the purest blue emission nearest to the NTSC standard ever reported.

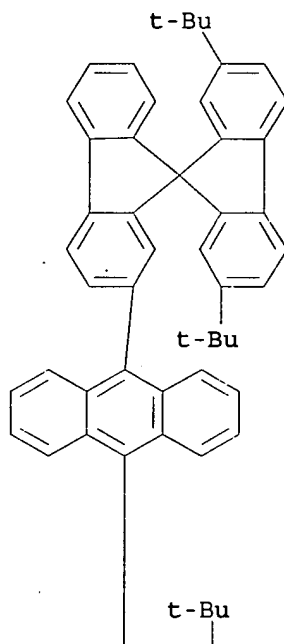
IT 393841-79-7P

(novel blue emitting material with high color purity)

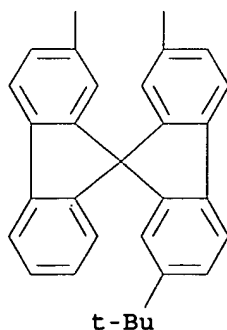
RN 393841-79-7 HCAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2''-(9,10-anthracenediyl)bis[2',7'-bis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 25, 74

IT 393841-79-7P

(novel blue emitting material with high color purity)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 55 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:619658 HCAPLUS

DOCUMENT NUMBER: 135:357646

TITLE: Light-Emitting Carbazole Derivatives: Potential Electroluminescent Materials

AUTHOR(S): Thomas, K. R. Justin; Lin, Jiann T.; Tao, Yu-Tai; Ko, Chung-Wen

CORPORATE SOURCE: Institute of Chemistry, Academia Sinica, Taipei, 115, Taiwan

SOURCE: Journal of the American Chemical Society (2001), 123(38), 9404-9411

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 135:357646

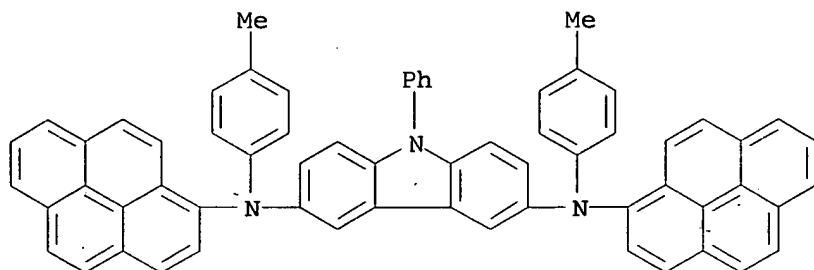
AB Stable carbazole derivs. that contain peripheral diarylamines at the 3- and 6-positions and an Et or aryl substituent at the 9-position of the carbazole moiety have been synthesized via palladium-catalyzed C-N bond formation. These new carbazole compds. (carbs) are amorphous with high glass transition temps. (Tg, 120-194 °C) and high thermal decomposition temps. (Td > 450 °C). The compds. are weakly to moderately luminescent in nature. The emission wavelength ranges from green to blue and is dependent on the substituent at the peripheral nitrogen atoms. Two types of light-emitting diodes were constructed from carb: (I) ITO/carb/TPBI/Mg:Ag and (II) ITO/carb/Alq3/Mg:Ag, where TPBI and Alq3 are 1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene and tris(8-hydroxyquinoline) aluminum, resp. In type I devices, the carb functions as the hole-transporting as well as emitting material. In type II devices, either carb, or Alq3 is the light-emitting material. Several green light-emitting devices exhibit exceptional maximum brightness, and the phys. performance appears to be better than those of typical green light-emitting devices of the structure ITO/diamine/Alq3/Mg:Ag. The relation between the LUMO of the carb and the performance of the light-emitting diode is discussed.

IT 340162-07-4

(preparation of light-emitting carbazole derivs. as potential electroluminescent materials)

RN 340162-07-4 HCAPLUS

CN 9H-Carbazole-3,6-diamine, N,N'-bis(4-methylphenyl)-9-phenyl-N,N'-di-1-pyrenyl- (9CI) (CA INDEX NAME)



CC 22-9 (Physical Organic Chemistry)
 Section cross-reference(s): 73, 74, 76
 IT 2085-33-8, Tris(8-hydroxyquinolinealuminum) 192198-85-9
 340162-07-4 340162-08-5
 (preparation of light-emitting carbazole derivs.
 as potential electroluminescent materials)
 IT 144726-91-0P 340162-05-2P 373390-01-3P
 373390-02-4P 373390-03-5P 373390-04-6P
 373390-05-7P 373390-06-8P
 (preparation of light-emitting carbazole derivs.
 as potential electroluminescent materials)
 REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L36 ANSWER 56 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:406540 HCAPLUS

DOCUMENT NUMBER: 135:144235

TITLE: Stable blue and white organic light emitting diodes

AUTHOR(S): Jiang, Xue-yin; Zhang, Zhi-lin; Zhang, Bu-xin;

Zhu, Wen-qing; Zheng, Xin-you; Xu, Shao-hong

CORPORATE SOURCE: School of Materials Science & Engineering,
 Shanghai University, Shanghai, 201800, Peop.
 Rep. China

SOURCE: Faguang Xuebao (2000), 21(4), 369-372

CODEN: FAXUEW; ISSN: 1000-7032

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB A blue organic light emitting diode (OLED) with rather stability was realized by using a new blue emitting material. Cu phthalocyanine (CuPc) was chosen as a buffer layer, N,N'-bis-(1-naphthyl)-N,N'-diphenyl-1,1'-biphenyl-4-4'-diamine (NPB) was used as the hole transporting layer, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)anthracene (JBEM) was used as the emitting layer, in which perylene was doped, then Alq was used as the electron transporting, MgAg alloy as the cathode. The structure of blue device was ITO/CuPc/NPB/JBEM:perylene/Alq/MgAg. Based on the blue device, a white device was constructed in which both perylene and DCJTb were doped in the emitting layer JBEM, the structure was ITO/CuPc/NPB/JBEM:perylene:DCJTb/Alq/MgAg. The luminance, chromaticity and EL spectra of the OLED cells were measured with PR-650 Spectrascan Spectra Colorimeter. The characteristic of current-voltage was measured by using a Keithley 2400 Source Meter. Operation of the encapsulated EL cell was conducted at room temperature using a d.c. voltage current source in the constant

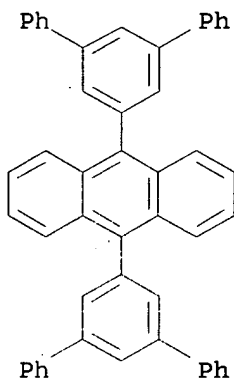
current mode. For the blue device, maximum luminance of 7 526 cd/m², the luminance of 408 cd/m² under c.d. of 20 mA/cm², maximum efficiency 1.45 lm/W, the half decay time of 1035 h at initial luminance of 100 cd/m² were achieved. The white OLED shows the CIE coordinates $x = 0.32$, $y = 0.38$ and the independence of CIE coordinates on the c.d. The maximum luminance of 14,852 cd/m², the luminance of 878 cd/m² under c.d. of 20 mA/cm², maximum efficiency of 2.88 lm/W and half decay time of 2 860 h at initial luminance of 100 cd/m² were obtained.

IT 247575-24-2

(stable blue and white organic LEDs containing)

RN 247575-24-2 HCAPLUS

CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 147-14-8, Copper phthalocyanine 198-55-0, Perylene 2085-33-8, Tris(8-hydroxyquinolino)aluminum 123847-85-8, NPB 200052-70-6 247575-24-2

(stable blue and white organic LEDs containing)

L36 ANSWER 57 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:812784 HCAPLUS

DOCUMENT NUMBER: 132:85690

TITLE: Blue electroluminescence from 1,3-diphenyl-5-(2-pyrenyl)-2-pyrazoline

AUTHOR(S): Gao, Xi-Cun; Cao, Hong; Zhang, Lian-Qi; Zhang, Bao-Wen; Huang, Chun-Hui

CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China

SOURCE: Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (1999), 337, 333-336
CODEN: MCLCE9; ISSN: 1058-725X

PUBLISHER: Gordon & Breach Science Publishers

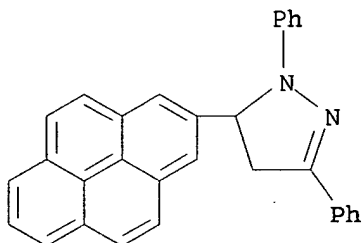
DOCUMENT TYPE: Journal

LANGUAGE: English

AB 1,3-Diphenyl-5-(2-pyrenyl)-2-pyrazoline (DPP) was synthesized and used as the emitter material in the electroluminescence (EL) devices. The blue emission from DPP in the ITO/diamine/DPP/8-hydroxyquinoline Al/Al device is elec. strength

dependent and is explained by the electron tunneling injection model. The energy levels used in this model were determined by thin film electrochem. The device shows **blue** electroluminescence with luminance 2400 cd/m² at 18 V and efficiency 0.23 lm/W at 1.27 mA/cm².

IT 228252-26-4
(**blue electroluminescence** from
diphenylpyrenylpyrazoline **LED emitter** due
to electron tunneling injection)
RN 228252-26-4 HCAPLUS
CN 1H-Pyrazole, 4,5-dihydro-1,3-diphenyl-5-(2-pyrenyl)- (9CI) (CA
INDEX NAME)



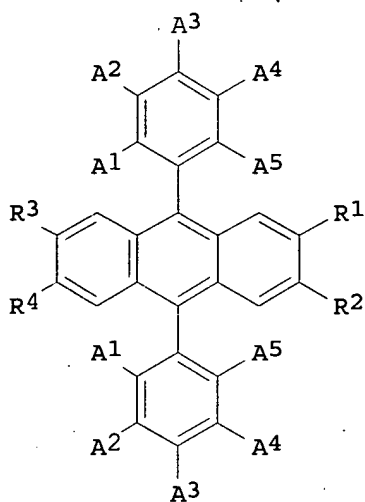
CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 76
ST pyrenylpyrazoline **LED blue** electroluminescence tunneling
injection
IT Electroluminescent devices
Tunneling
(**blue electroluminescence** from
diphenylpyrenylpyrazoline **LED emitter** due to electron tunneling
injection)
IT Luminescence, electroluminescence
(**blue; blue electroluminescence** from
diphenylpyrenylpyrazoline **LED emitter** due to electron tunneling
injection)
IT 228252-26-4
(**blue electroluminescence** from
diphenylpyrenylpyrazoline **LED emitter** due
to electron tunneling injection)
IT 2085-33-8, Hydroxyquinoline aluminum
(electron transport layer; **blue electroluminescence**
from diphenylpyrenylpyrazoline **LED emitter** due to electron
tunneling injection)
IT 65181-78-4, TPD
(hole transport layer; **blue electroluminescence** from
diphenylpyrenylpyrazoline **LED emitter** due to electron tunneling
injection)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L36 ANSWER 58 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:756254 HCAPLUS
DOCUMENT NUMBER: 132:7423
TITLE: Blue light-emitting organic thin film
electroluminescent (EL) device

INVENTOR(S): Ito, Yuichi; Kai, Teruhiko; Sakaki, Yuichi
 PATENT ASSIGNEE(S): Toppan Printing Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11329732	A2	19991130	JP 1998-138830	1998 0520
PRIORITY APPLN. INFO.:			JP 1998-138830	1998 0520
OTHER SOURCE(S):		MARPAT 132:7423		
GI				



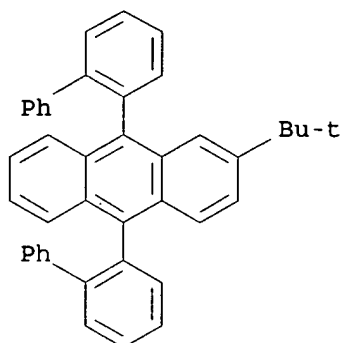
I

AB The EL device comprises an anthracene derivative I (R1-4 = alkyl, alkoxy, cyano, trifluoromethyl; ≥ 1 of A1-5 is aryl or aryl-substituted oxadiazole). The anthracene derivative is resistant to heat and crystallization, so that the device also shows high heat- and crystallization resistance and inhibits elec. short circuit.

IT 250339-07-2
 (blue light-emitting organic thin film electroluminescent device containing anthracene derivative)

RN 250339-07-2 HCAPLUS

CN Anthracene, 9,10-bis([1,1'-biphenyl]-2-yl)-2-(1,1-dimethylethyl)-(9CI) (CA INDEX NAME)



IC ICM H05B033-14
ICS C09K011-06
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 25
IT 250339-07-2 250341-07-2 250341-14-1
(blue light-emitting organic thin film electroluminescent device containing anthracene derivative)

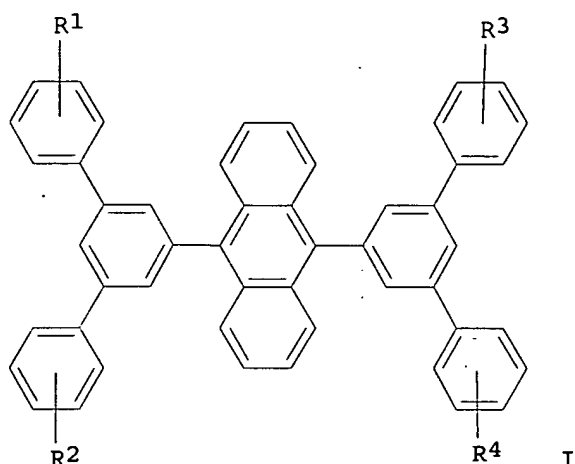
L36 ANSWER 59 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:686536 HCAPLUS
DOCUMENT NUMBER: 131:315627
TITLE: Organic electroluminescent elements for stable blue electroluminescent devices
INVENTOR(S): Shi, Jianmin; Chen, Chin H.; Klubek, Kevin P.
PATENT ASSIGNEE(S): Eastman Kodak Company, USA
SOURCE: U.S., 19 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5972247	A	19991026	US 1998-45597	1998 0320
EP 952200	A2	19991027	EP 1999-200731	1999 0311
EP 952200	A3	19991117		
EP 952200	B1	20021218		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11312588	A2	19991109	JP 1999-74876	1999 0319

PRIORITY APPLN. INFO.: US 1998-45597 A
1998 0320

OTHER SOURCE(S): MARPAT 131:315627

GI



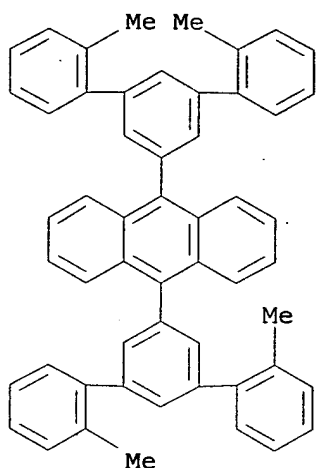
AB Organic electroluminescent devices comprising an anode, a cathode, and an organic electroluminescent element between the anode and the cathode are described in which the organic electroluminescent element includes ≥ 1 organic material are described by the general formula I (R1-4 = independently selected from the following groups: hydrogen, C1-24 alkyl groups; C5-20 (un)substituted aryl groups; carbon atoms necessary to complete a fused aromatic ring of naphthyl, anthracenyl, pyrenyl, or perylenyl; C5-24 (un)substituted heteroaryl groups; fused heteroarom. rings, especially furyl, thienyl, pyridyl, or quinolinyl rings; C1-24 alkoxyl, amino, alkyl amino, or aryl amino groups; or fluorine, chlorine, bromine, or cyano groups).

IT 247575-69-5P

(organic electroluminescent elements employing Ph anthracene derivs. for stable blue electroluminescent devices)

RN 247575-69-5 HCAPLUS

CN Anthracene, 9,10-bis(2,2''-dimethyl[1,1':3',1''-terphenyl]-5'-yl)-(9CI) (CA INDEX NAME)



IC ICM G02F001-00
ICS C09K011-06; H01J001-62
INCL 252583000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 25, 76
IT 247575-69-5P 247576-19-8P
(organic **electroluminescent** elements employing Ph anthracene derivs. for stable **blue electroluminescent** devices)
IT 247575-24-2P
(organic **electroluminescent** elements employing Ph anthracene derivs. for stable **blue electroluminescent** devices)
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 60 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:255087 HCAPLUS
DOCUMENT NUMBER: 131:65577
TITLE: Properties of a new pyrazoline derivative and its application in electroluminescence
AUTHOR(S): Gao, Xi-Cun; Cao, Hong; Zhang, Lian-Qi; Zhang, Bao-Wen; Cao, Yi; Huang, Chun-Hui
CORPORATE SOURCE: State Key Laboratory of Rare Earth Materials Chemistry and Applications, Peking University, Beijing, 100871, Peop. Rep. China
SOURCE: Journal of Materials Chemistry (1999), 9(5), 1077-1080
CODEN: JMACEP; ISSN: 0959-9428
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB As evaporated thin film and in solution, the absorption spectra, photoluminescence, electrochem. and electroluminescence of the newly synthesized 1,3-diphenyl-5-pyren-2-yl-4,5-dihydro-1H-pyrazole (DPP) were studied. The absorption spectra cover the whole near-UV region. At lower concns., the fluorescence emission is at 415 nm; at higher concns., a new face to face excimer

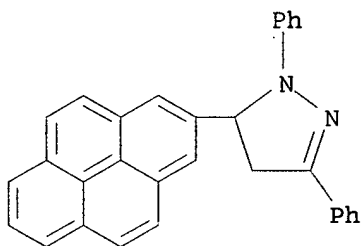
emission appears on longer wavelengths; in the thin film state, the fluorescence emission becomes a single band peaking at 470 nm. Cyclic voltammetry of DPP and the hole transport material as evaporated thin films on ITO (indium Sn oxide) was compared with that in solution and was used to determine the energy levels. The elec. field strength dependent electroluminescent behavior of DPP was explained according to the energy levels by a tunneling mechanism, ruling out the possible cause by an excimer or exciplex formation. At a drive voltage of 18 V, the blue electroluminescence reached 2400 cd m⁻².

IT 228252-26-4P

(properties of new pyrazoline derivative and application in electroluminescence)

RN 228252-26-4 HCAPLUS

CN 1H-Pyrazole, 4,5-dihydro-1,3-diphenyl-5-(2-pyrenyl)- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 72, 76

IT 228252-26-4P

(properties of new pyrazoline derivative and application in electroluminescence)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 61 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:111983 HCAPLUS

DOCUMENT NUMBER: 130:202741

TITLE: Gallium-containing polynuclear complex, light-emitting material containing it, and organic electroluminescent device using it

INVENTOR(S): Enokida, Toshio; Tamano, Michiko; Onikubo, Shunichi; Okutsu, Satoshi

PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 29 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11040355	A2	19990212	JP 1997-187893	1997

PRIORITY APPLN. INFO.:

JP 1997-187893

0714

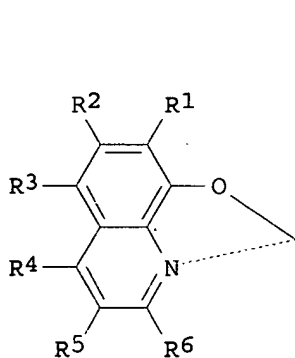
1997

0714

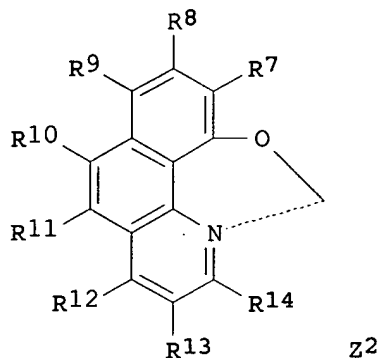
OTHER SOURCE(S):

MARPAT 130:202741

GI



Z1



Z2

AB The complex is shown as Q2Q1GaOA1(XA2)nOGaQ3Q4 [I; Q1-4 = Z1, Z2; A1, A2 = (substituted) alkylene, (substituted) divalent monocyclic or condensed polycyclic group; X = (substituted) alkylene, O, S, SO₂, CO, SiR₁₅R₁₆, NR₁₇; X ≠ alkylene if A1 and A2 = (substituted) alkylene; n = 0-2; R1-17 = H, halo, cyano, NO₂, (substituted) alkyl, (substituted) alkoxy, (substituted) aryloxy, (substituted) alkylthio, (substituted) monocyclic or condensed polycyclic group; neighboring R1-16 may form ring(s)]. The light-emitting material is composed of I and a dopant. The electroluminescent device has a light-emitting layer containing the above light-emitting material between a pair of electrodes. In the device, the cathode may also be composed of I. The complex gives green- or blue-emitting electroluminescent devices with high emission and long service life.

IT 220790-89-6

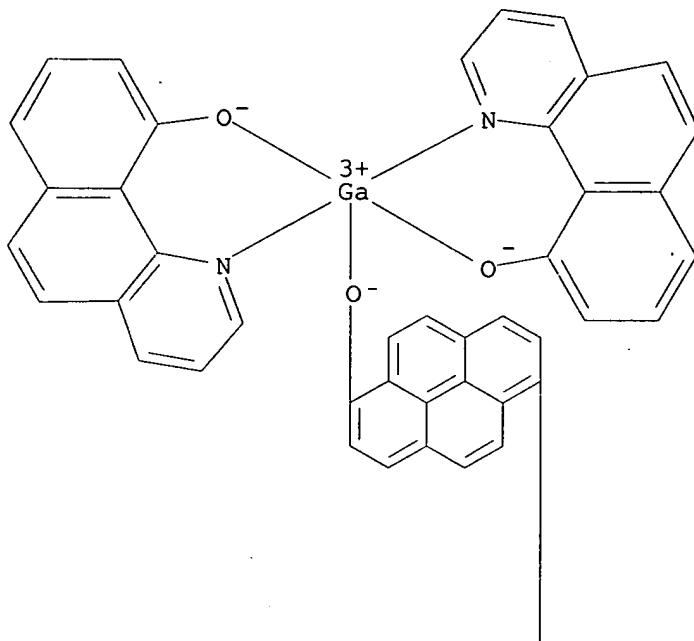
(green- and blue-emitting

electroluminescent device containing gallium-containing polynuclear complex)

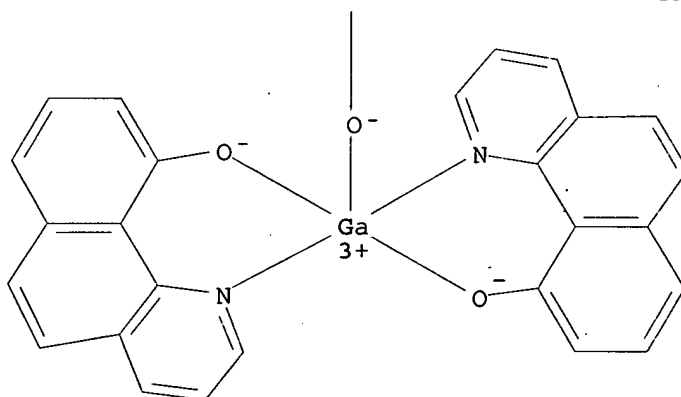
RN 220790-89-6 HCAPLUS

CN Gallium, tetrakis(benzo[h]quinolin-10-olato- κ N1, κ O10) [μ -[1,6-pyrenediolato(2-)- κ O: κ O']]di- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IC ICM H05B033-14
 ICS C09K011-06; H05B033-22
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 29
 ST electroluminescent device gallium polynuclear complex; green
 blue emission EL device
 IT Electroluminescent devices
 (blue-emitting; green- and blue-emitting
 electroluminescent device containing gallium-containing polynuclear
 complex)
 IT Electroluminescent devices

(green-emitting; green- and blue-emitting
electroluminescent device containing gallium-containing polynuclear
complex)

IT 220790-35-2P

(green- and blue-emitting electroluminescent device
containing gallium-containing polynuclear complex)

IT 220790-12-5 220790-14-7 220790-15-8 220790-16-9
220790-17-0 220790-18-1 220790-19-2 220790-20-5
220790-21-6 220790-22-7 220790-23-8 220790-24-9
220790-25-0 220790-26-1 220790-27-2 220790-28-3
220790-29-4 220790-30-7 220790-31-8 220790-32-9
220790-33-0 220790-34-1 220790-36-3 220790-37-4
220790-38-5 220790-39-6 220790-40-9 220790-41-0
220790-42-1 220790-43-2 220790-44-3 220790-45-4
220790-46-5 220790-47-6 220790-48-7 220790-49-8
220790-50-1 220790-51-2 220790-52-3 220790-53-4
220790-54-5 220790-55-6 220790-56-7 220790-57-8
220790-58-9 220790-59-0 220790-60-3 220790-61-4
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220790-66-9 220790-67-0 220790-68-1 220790-69-2
220790-70-5 220790-71-6 220790-72-7 220790-73-8
220790-74-9 220790-75-0 220790-76-1 220790-77-2
220790-78-3 220790-79-4 220790-80-7 220790-81-8
220790-82-9 220790-83-0 220790-84-1 220790-85-2
220790-86-3 220790-87-4 220790-88-5 220790-89-6
220790-90-9

(green- and blue-emitting
electroluminescent device containing gallium-containing
polynuclear complex)

IT 80-05-7, reactions 826-81-3, 8-Hydroxyquinaldine 2572-25-0
(green- and blue-emitting electroluminescent device
containing gallium-containing polynuclear complex)

L36 ANSWER 62 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:663074 HCAPLUS

DOCUMENT NUMBER: 123:127048

TITLE: Electroluminescent element with oxadiazole
derivative electron-transporting layer

INVENTOR(S): Nagai, Kazukyo; Adachi, Chihaya; Sakon,
Hirota; Tamoto, Nozomi

PATENT ASSIGNEE(S): Ricoh Kk, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

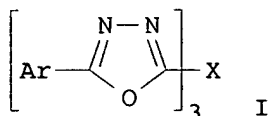
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07109454	A2	19950425	JP 1993-280179	1993 1012
JP 3482446	B2	20031222	JP 1993-280179	1993 1012
PRIORITY APPLN. INFO.:				

OTHER SOURCE(S): MARPAT 123:127048

GI



AB The title element has ≥ 1 organic compound layer, ≥ 1 of which contains an oxadiazole derivative I [Ar = (substituted) condensed polycyclic hydrocarbon, (substituted) aromatic heterocycle; X = trivalent group formed by removal of 3 H atoms from benzene ring], between an anode and a cathode. The organic compound layer may comprise ≥ 1 light-emitting layer and ≥ 1 electron-transporting layer, ≥ 1 of which contains I, optionally having ≥ 1 hole-transporting layer. The element showed bluish green emission with improved durability.

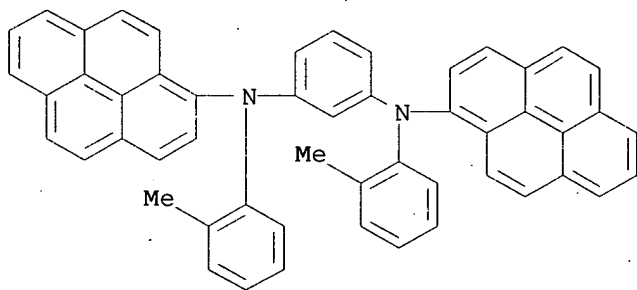
IT 157357-76-1

(light-emitting layer;

electroluminescent devices containing oxadiazole derivative electron-transporting layers)

RN 157357-76-1 HCAPLUS

CN 1,3-Benzenediamine, N,N'-bis(2-methylphenyl)-N,N'-di-1-pyrenyl-
(9CI) (CA INDEX NAME)



IC ICM C09K011-06

ICS H05B033-14

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 28, 74

ST electroluminescent device oxadiazole deriv electron transporter; durability electroluminescent device blue green emission

IT Electroluminescent devices

(blue-green-emitting, organic; electroluminescent

devices containing oxadiazole derivative electron-transporting layers)

IT 157357-76-1

(light-emitting layer;

electroluminescent devices containing oxadiazole derivative electron-transporting layers)

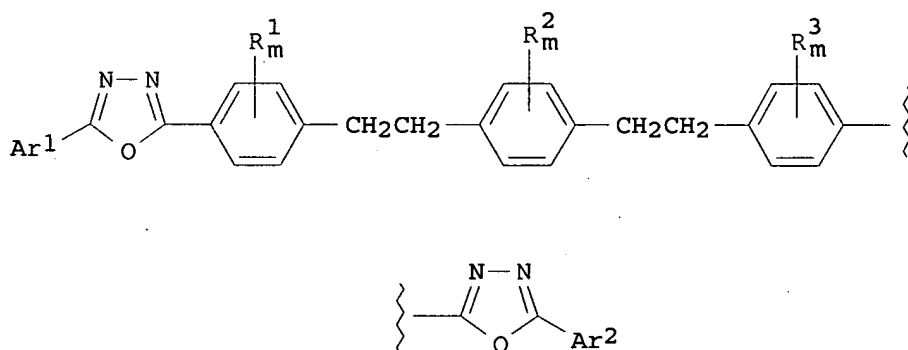
L36 ANSWER 63 OF 63 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:663072 HCAPLUS

DOCUMENT NUMBER: 123:127046

TITLE: Electroluminescent element with oxadiazole derivative electron-transporting layer
 INVENTOR(S): Nagai, Kazukyo; Adachi, Chihaya; Sakon, Hirota; Tamoto, Nozomi
 PATENT ASSIGNEE(S): Ricoh Kk, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07109452	A2	19950425	JP 1993-280092	1993 1013
PRIORITY APPLN. INFO.:				JP 1993-280092
				1993 1013
OTHER SOURCE(S):		MARPAT 123:127046		
GI				

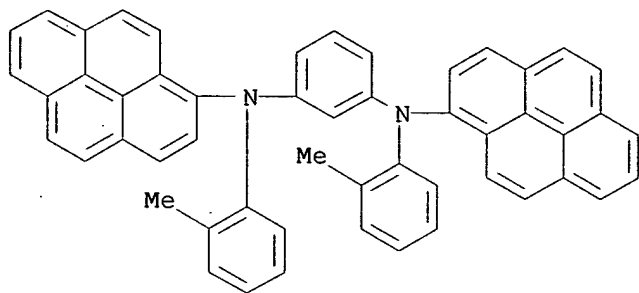


AB The title element has ≥ 1 organic compound layer, ≥ 1 of which contains an oxadiazole derivative I [Ar1, Ar2 = (substituted) aromatic hydrocarbon, (substituted) aromatic heterocycle; R1-3 = H, halo, (substituted) alkyl, alkoxy, CF3, (substituted) aryl; m = 1-4] between an anode and a cathode. The organic compound layer may comprise ≥ 1 light-emitting layer and ≥ 1 electron-transporting layer, ≥ 1 of which contains I, optionally having ≥ 1 hole-transporting layer. The device showed blue emission with improved durability.

IT 157357-76-1
 (light-emitting layer;
 electroluminescent element containing oxadiazole derivative
 electron-transporting layer)

RN 157357-76-1 HCAPLUS

CN 1,3-Benzenediamine, N,N'-bis(2-methylphenyl)-N,N'-di-1-pyrenyl-
 (9CI) (CA INDEX NAME)



IC ICM C09K011-06
ICS H05B033-14
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 28, 74
ST electroluminescent device oxadiazole deriv electron transporter; durability electroluminescent device **blue** emission
IT Electroluminescent devices
(**blue**-emitting, organic; electroluminescent element containing oxadiazole derivative electron-transporting layer)
IT 157357-76-1
(**light-emitting** layer;
electroluminescent element containing oxadiazole derivative electron-transporting layer)